

Appendix 10

Noise Impact Analysis

Magnolia Ranch Residential Project
Initial Study

NOISE IMPACT ANALYSIS
MAGNOLIA RANCH RESIDENTIAL PROJECT
CITY OF EASTVALE

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ACRONYMS AND ABBREVIATIONS

ANSI	American National Standards Institute
Caltrans	California Department of Transportation
CEQA	California Environmental Quality Act
City	City of Eastvale
cmu	concrete masonry unit
CNEL	Community Noise Equivalent Level
dB	Decibel
dBA	A-weighted decibels
DOT	Department of Transportation
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
EPA	Environmental Protection Agency
Hz	Hertz
Ldn	Day-night average noise level
Leq	Equivalent sound level
Lmax	Maximum noise level
OSHA	Occupational Safety and Health Administration
PPV	Peak particle velocity
RMS	Root mean square
SEL	Single Event Level or Sound Exposure Level
STC	Sound Transmission Class
VdB	Vibration velocity level in decibels

1.0 INTRODUCTION

1.1 Purpose of Analysis and Study Objectives

This Noise Impact Analysis has been prepared to determine the noise impacts associated with the proposed Magnolia Ranch Residential project (proposed project). The following is provided in this report:

- A description of the study area and the proposed project;
- Information regarding the fundamentals of noise;
- Information regarding the fundamentals of vibration;
- A description of the local noise guidelines and standards;
- An evaluation of the current noise environment;
- An analysis of the potential short-term construction-related noise impacts from the proposed project; and
- An analysis of long-term operations-related noise impacts from the proposed project.

1.2 Site Location and Study Area

The project site is located in the City of Eastvale (City). The approximately 10.0 gross acre project site is relatively flat and currently includes a ranch house with barn and associated fencing and facilities for livestock/horses. The project site is bounded by Schleisman Road to the north, Eastvale Elementary School to the east, Orange Street and River Heights Intermediate School to the south and single-family homes to the west. The project study area is shown in Figure 1.

Sensitive Receptors in Project Vicinity

The nearest sensitive receptors to the project site are the single-family homes that are located as near as 25 feet west of the project site. The nearest structure at Eastvale Elementary School is a covered lunch area that is as near as 25 feet east of the project site.

1.3 Proposed Project Description

The proposed project would consist of a residential development on 8.28 net acres that would include 41 detached single-family homes with approximately 22,000 square feet of common open space. New sidewalks will be provided along the north side of Orange Street, a walkway will run in a north-south direction adjacent to the east property line, and a walkway will run in an east-west direction through the common open space area. The proposed project would also include development of an internal road system and road improvements to the portion of Orange Street that is adjacent to the project site. It should be noted that the project applicant is proposing to pay TUMF fees in lieu of road improvements to the portion of Schleisman Road that is adjacent to the project site, however in order to provide a conservative analysis, it has been assumed that this area will be graded as part of the proposed project. The proposed site plan is shown in Figure 2.

1.4 Executive Summary

Standard Noise Regulatory Conditions

The proposed project will be required to comply with the following regulatory conditions from the City and State of California (State).

City of Eastvale Noise Regulations

The following lists the noise and vibration regulations from the City of Eastvale Development Code that are applicable, but not limited to the proposed project.

- Section 120.05.130(b) - Noise control standards
- Section 120.05.130(b) – Vibration standards

State of California Noise Regulations

The following lists the State of California noise regulations that are applicable, but not limited to the proposed project.

- California Vehicle Code Section 27200-27207 – On Road Vehicle Noise Limits
- California Vehicle Code Section 38365-38350 – Off-Road Vehicle Noise Limits

Summary of Analysis Results

The following is a summary of the proposed project’s impacts with regard to the State CEQA Guidelines noise checklist questions.

Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Less than significant impact.

Generation of excessive groundborne vibration or groundborne noise levels?

Less than significant impact.

For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

Less than significant impact.

1.5 Project Design Features Incorporated into the Proposed Project

This analysis was based on implementation of the following project design features that are either already depicted on the proposed project site plan and architectural plans or are required from City and State Regulations.

Project Design Feature 1:

Prior to the issuance of the grading permit, the project applicant shall submit a construction-related noise mitigation plan to the City for review and approval. The plan shall depict the

locations of where construction equipment will operate on the project site and how the noise from the construction equipment will be mitigated during construction of the project, through use of such methods as:

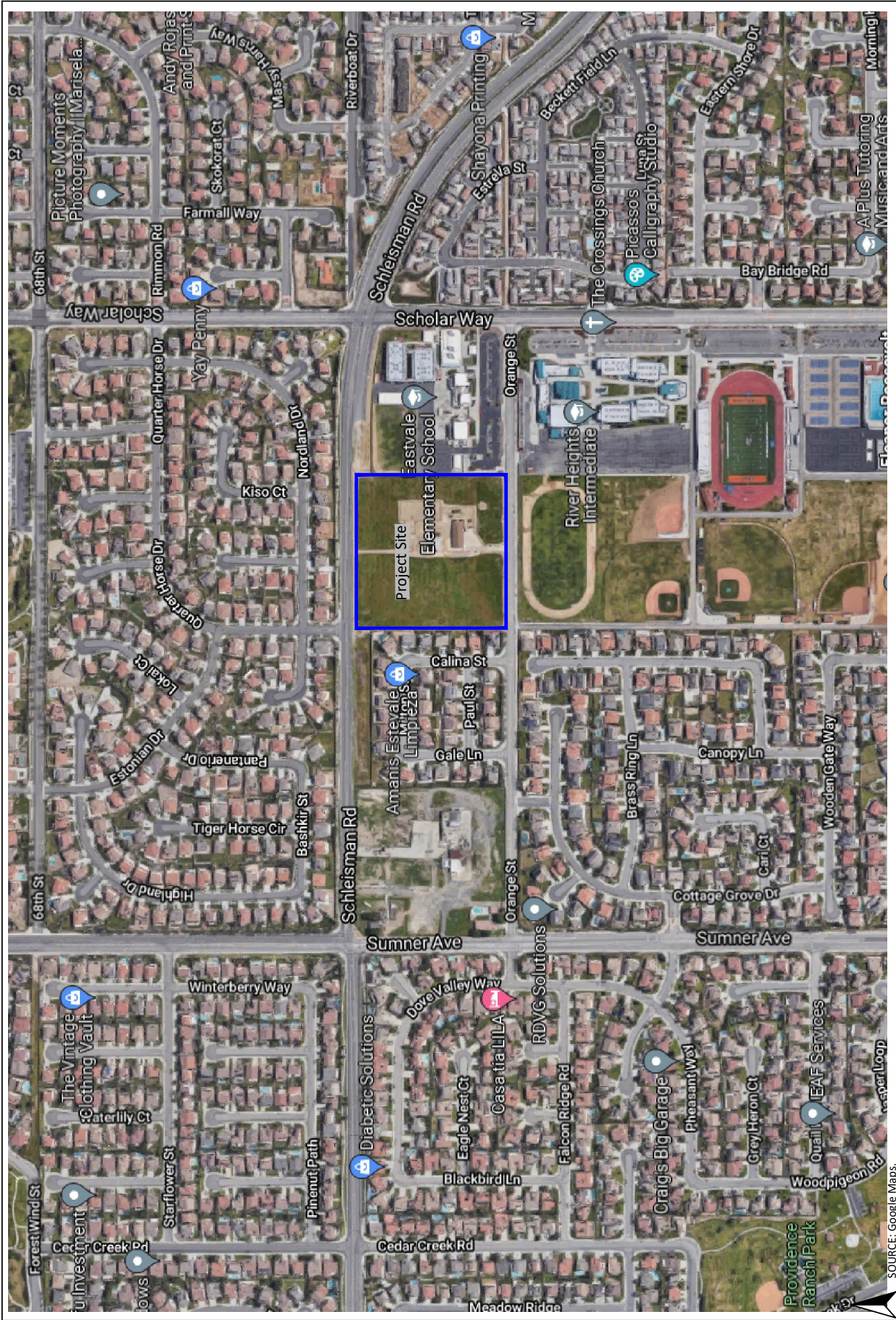
1. Temporary noise attenuation fences;
2. Preferential location of equipment
3. Length of equipment use and idling time; and,
4. Use of current noise suppression technology and equipment.

1.6 Mitigation Measures for the Proposed Project

This analysis found that through adherence to the noise and vibration regulations detailed in Section 1.4, through implementation of Project Design Feature 1 detailed in Section 1.5 above, and through implementation of the following mitigation all noise and vibration impacts would be reduced to less than significant levels.

Mitigation Measure 1:

The project applicant shall construct a minimum 6.5-foot high wall on the north side of Lots 9 through 28 that are adjacent to Schleisman Road. The walls shall be constructed of concrete masonry units (CMUs) and shall be free of any decorative cutouts or openings.



SOURCE: Google Maps.

Figure 1
Project Location Map

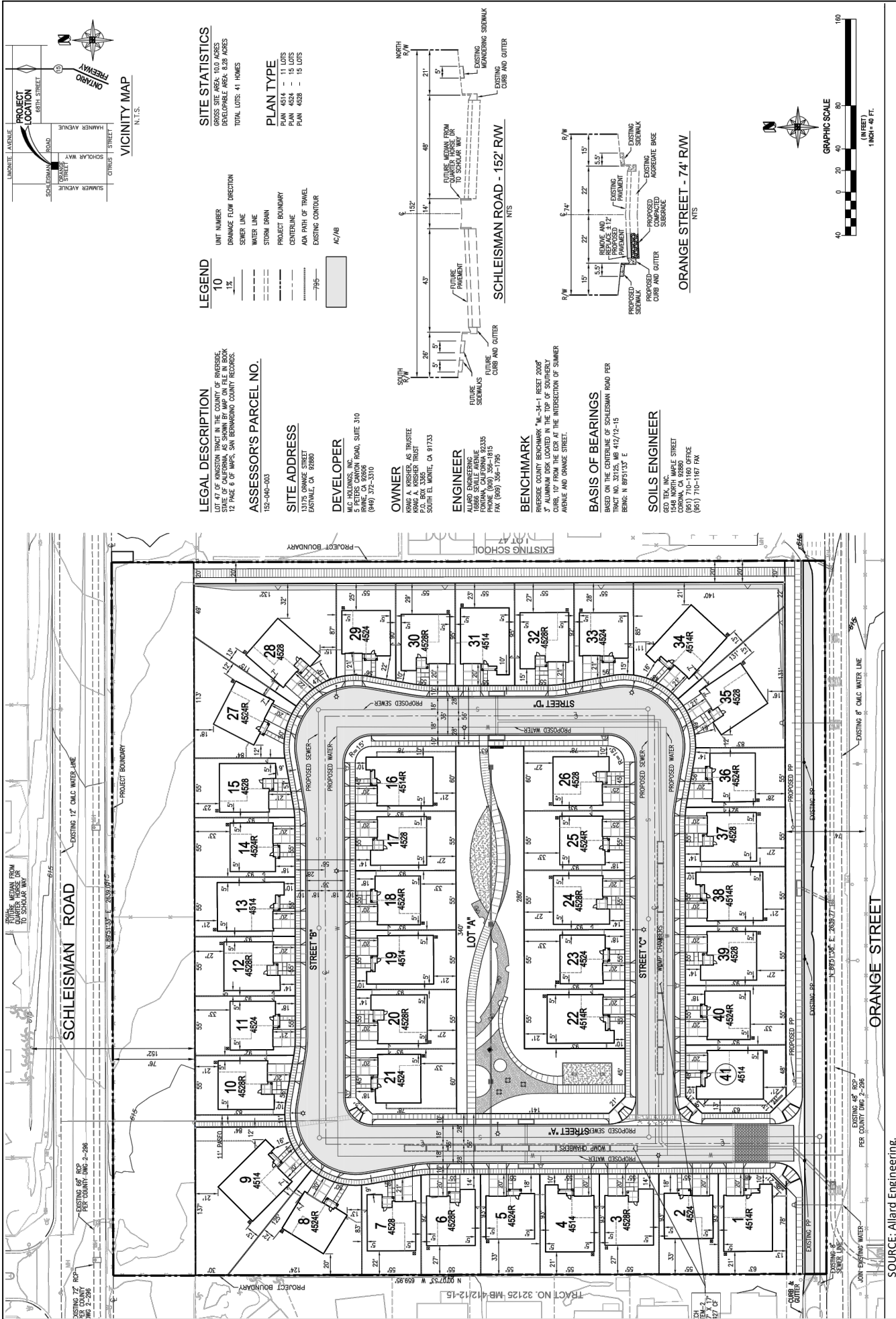


Figure 2
 Proposed Site Plan

SOURCE: Allard Engineering.



2.0 NOISE FUNDAMENTALS

Noise is defined as unwanted sound. Sound becomes unwanted when it interferes with normal activities, when it causes actual physical harm or when it has adverse effects on health. Sound is produced by the vibration of sound pressure waves in the air. Sound pressure levels are used to measure the intensity of sound and are described in terms of decibels. The decibel (dB) is a logarithmic unit which expresses the ratio of the sound pressure level being measured to a standard reference level. A-weighted decibels (dBA) approximate the subjective response of the human ear to a broad frequency noise source by discriminating against very low and very high frequencies of the audible spectrum. They are adjusted to reflect only those frequencies which are audible to the human ear.

2.1 Noise Descriptors

Noise Equivalent sound levels are not measured directly, but are calculated from sound pressure levels typically measured in A-weighted decibels (dBA). The equivalent sound level (Leq) represents a steady state sound level containing the same total energy as a time varying signal over a given sample period. The worst-hour traffic Leq is the noise metric used by California Department of Transportation (Caltrans) for analyzing traffic noise impacts.

The Day-Night Average Level (Ldn or DNL) is the weighted average of the intensity of a sound, with corrections for time of day, and averaged over 24 hours. The time of day corrections require the addition of ten decibels to sound levels at night between 10 p.m. and 7 a.m. While the Community Noise Equivalent Level (CNEL) is similar to the Ldn, except that it has another addition of 4.77 decibels to sound levels during the evening hours between 7 p.m. and 10 p.m. These additions are made to the sound levels at these time periods because during the evening and nighttime hours, when compared to daytime hours, there is a decrease in the ambient noise levels, which creates an increased sensitivity to sounds. For this reason, the sound appears louder in the evening and nighttime hours and is weighted accordingly. The City of Eastvale relies on the CNEL noise standard to assess transportation-related impacts on noise sensitive land uses.

2.2 Tone Noise

A pure tone noise is a noise produced at a single frequency and laboratory tests have shown that humans are more perceptible to changes in noise levels of a pure tone. For a noise source to contain a “pure tone,” there must be a significantly higher A-weighted sound energy in a given frequency band than in the neighboring bands, thereby causing the noise source to “stand out” against other noise sources. A pure tone occurs if the sound pressure level in the one-third octave band with the tone exceeds the average of the sound pressure levels of the two contiguous one-third octave bands by:

- 5 dB for center frequencies of 500 hertz (Hz) and above
- 8 dB for center frequencies between 160 and 400 Hz
- 15 dB for center frequencies of 125 Hz or less

2.3 Noise Propagation

From the noise source to the receiver, noise changes both in level and frequency spectrum. The most obvious is the decrease in level of noise as the distance from the source increases. The manner in which the noise level reduces with distance depends on whether the source is a point or line source as well as ground absorption, atmospheric effects and refraction, and shielding by natural and manmade features.

Sound from point sources, such as air conditioning condensers, radiate uniformly outward as it travels away from the source in a spherical pattern. The noise drop-off rate associated with this geometric spreading is 6 dBA per each doubling of the distance (dBA/DD) between source and receiver. Transportation noise sources such as roadways are typically analyzed as line sources, since at any given moment the receiver may be impacted by noise from multiple vehicles at various locations along the roadway. Because of the geometry of a line source, the noise drop-off rate associated with the geometric spreading of a line source is 3 dBA/DD.

2.4 Ground Absorption

The sound drop-off rate is highly dependent on the conditions of the land between the noise source and receiver. To account for this ground-effect attenuation (absorption), two types of site conditions are commonly used in traffic noise models, soft-site and hard-site conditions. Soft-site conditions account for the sound propagation loss over natural surfaces such as normal earth and ground vegetation. For point sources, a drop-off rate of 7.5 dBA/DD is typically observed over soft ground with landscaping, as compared with a 6.0 dBA/DD drop-off rate over hard ground such as asphalt, concrete, stone and very hard packed earth. For line sources a 4.5 dBA/DD is typically observed for soft-site conditions compared to the 3.0 dBA/DD drop-off rate for hard-site conditions. Caltrans research has shown that the use of soft-site conditions is more appropriate for the application of the Federal Highway Administration (FHWA) traffic noise prediction model used in this analysis.

3.0 GROUND-BORNE VIBRATION FUNDAMENTALS

Ground-borne vibrations consist of rapidly fluctuating motions within the ground that have an average motion of zero. The effects of ground-borne vibrations typically only cause a nuisance to people, but at extreme vibration levels damage to buildings may occur. Although ground-borne vibration can be felt outdoors, it is typically only an annoyance to people indoors where the associated effects of the shaking of a building can be notable. Ground-borne noise is an effect of ground-borne vibration and only exists indoors, since it is produced from noise radiated from the motion of the walls and floors of a room and may also consist of the rattling of windows or dishes on shelves.

3.1 Vibration Descriptors

There are several different methods that are used to quantify vibration amplitude such as the maximum instantaneous peak in the vibrations velocity, which is known as the peak particle velocity (PPV) or the root mean square (rms) amplitude of the vibration velocity. Due to the typically small amplitudes of vibrations, vibration velocity is often expressed in decibels and is denoted as (L_v) and is based on the rms velocity amplitude. A commonly used abbreviation is “VdB”, which in this text, is when L_v is based on the reference quantity of 1 micro inch per second.

3.2 Vibration Perception

Typically, developed areas are continuously affected by vibration velocities of 50 VdB or lower. These continuous vibrations are not noticeable to humans whose threshold of perception is around 65 VdB. Off-site sources that may produce perceptible vibrations are usually caused by construction equipment, steel-wheeled trains, and traffic on rough roads, while smooth roads rarely produce perceptible ground-borne noise or vibration.

3.3 Vibration Propagation

The propagation of ground-borne vibration is not as simple to model as airborne noise. This is due to the fact that noise in the air travels through a relatively uniform medium, while ground-borne vibrations travel through the earth which may contain significant geological differences. There are three main types of vibration propagation; surface, compression, and shear waves. Surface waves, or Rayleigh waves, travel along the ground’s surface. These waves carry most of their energy along an expanding circular wave front, similar to ripples produced by throwing a rock into a pool of water. P-waves, or compression waves, are body waves that carry their energy along an expanding spherical wave front. The particle motion in these waves is longitudinal (i.e., in a “push-pull” fashion). P-waves are analogous to airborne sound waves. S-waves, or shear waves, are also body waves that carry energy along an expanding spherical wave front. However, unlike P-waves, the particle motion is transverse or “side-to-side and perpendicular to the direction of propagation.”

As vibration waves propagate from a source, the vibration energy decreases in a logarithmic nature and the vibration levels typically decrease by 6 VdB per doubling of the distance from the vibration source. As stated above, this drop-off rate can vary greatly depending on the soil but has been shown to be effective enough for screening purposes, in order to identify potential vibration impacts that may need to be studied through actual field tests.

4.0 REGULATORY SETTING

The project site is located in the City of Eastvale. Noise regulations are addressed through the efforts of various federal, state, and local government agencies. The agencies responsible for regulating noise are discussed below.

4.1 Federal Regulations

The adverse impact of noise was officially recognized by the federal government in the Noise Control Act of 1972, which serves three purposes:

- Promulgating noise emission standards for interstate commerce
- Assisting state and local abatement efforts
- Promoting noise education and research

The Federal Office of Noise Abatement and Control (ONAC) was initially tasked with implementing the Noise Control Act. However, the ONAC has since been eliminated, leaving the development of federal noise policies and programs to other federal agencies and interagency committees. For example, the Occupational Safety and Health Administration (OSHA) agency prohibits exposure of workers to excessive sound levels. The Department of Transportation (DOT) assumed a significant role in noise control through its various operating agencies. The Federal Aviation Administration (FAA) regulates noise of aircraft and airports. Surface transportation system noise is regulated by a host of agencies, including the Federal Transit Administration (FTA), which regulates transit noise, while freeways that are part of the interstate highway system are regulated by the Federal Highway Administration (FHWA). Finally, the federal government actively advocates that local jurisdictions use their land use regulatory authority to arrange new development in such a way that “noise sensitive” uses are either prohibited from being sited adjacent to a highway or, alternately that the developments are planned and constructed in such a manner that potential noise impacts are minimized.

Although the proposed project is not under the jurisdiction of the FTA, the *Transit Noise and Vibration Impact Assessment Manual* (FTA Manual), prepared by the FTA, September 2018, is the only guidance document from a government agency that has defined what constitutes a significant noise impact from implementing a project. The FTA standards are based on extensive studies by the FTA and other governmental agencies on the human effects and reaction to noise and a summary of the FTA findings are provided below in Table A.

Table A – FTA Project Effects on Cumulative Noise Exposure

Existing Noise Exposure (dBA Leq or Ldn)	Allowable Noise Impact Exposure dBA Leq or Ldn		
	Project Only	Combined	Noise Exposure Increase
45	51	52	+7
50	53	55	+5
55	55	58	+3
60	57	62	+2
65	60	66	+1
70	64	71	+1
75	65	75	0

Source: Federal Transit Administration, 2018.

The FTA also provides guidance on construction noise and recommends developing construction noise criteria on a project-specific basis that utilizes local noise ordinances if possible. However, local noise ordinances usually relates to nuisance and hours of allowed activity and sometimes specify limits in terms of maximum levels, but are generally not practical for assessing the noise impacts of a construction project. Project construction noise criteria should take into account the existing noise environment, the absolute noise levels during construction activities, the duration of the construction, and the adjacent land uses. The FTA standards are based on extensive studies by the FTA and other governmental agencies on the human effects and reaction to noise and a summary of the FTA findings for a detailed construction noise assessment are provided below in Table B.

Table B – FTA Construction Noise Criteria

Land Use	Day (dBA Leq _(8-hour))	Night (dBA Leq _(8-hour))	30-day Average (dBA Ldn)
Residential	80	70	75
Commercial	85	85	80 ⁽¹⁾
Industrial	90	90	85 ⁽¹⁾

Notes:

⁽¹⁾ Use a 24-hour Leq_(24-hour) instead of Ldn_(30 day).

Source: Federal Transit Administration, 2018.

Since the federal government has preempted the setting of standards for noise levels that can be emitted by the transportation sources, the City is restricted to regulating the noise generated by the transportation system through nuisance abatement ordinances and land use planning.

4.2 State Regulations

Noise Standards

California Department of Health Services Office of Noise Control

Established in 1973, the California Department of Health Services Office of Noise Control (ONC) was instrumental in developing regulatory tools to control and abate noise for use by local agencies. One significant model is the “Land Use Compatibility for Community Noise Environments Matrix,” which allows the local jurisdiction to clearly delineate compatibility of sensitive uses with various incremental levels of noise.

California Noise Insulation Standards

Title 24, Chapter 1, Article 4 of the California Administrative Code (California Noise Insulation Standards) requires noise insulation in new hotels, motels, apartment houses, and dwellings (other than single-family detached housing) that provides an annual average noise level of no more than 45 dBA CNEL. When such structures are located within a 60-dBA CNEL (or greater) noise contour, an acoustical analysis is required to ensure that interior levels do not exceed the 45-dBA CNEL annual threshold. In addition, Title 21, Chapter 6, Article 1 of the California Administrative Code requires that all habitable rooms, hospitals, convalescent homes, and places of worship shall have an interior CNEL of 45 dB or less due to aircraft noise.

Government Code Section 65302

Government Code Section 65302 mandates that the legislative body of each county and city in California adopt a noise element as part of its comprehensive general plan. The local noise element must recognize the land use compatibility guidelines published by the State Department of Health Services. The guidelines rank noise land use compatibility in terms of normally acceptable, conditionally acceptable, normally unacceptable, and clearly unacceptable.

California Vehicle Code Section 27200-27207 – On-Road Vehicle Noise

California Vehicle Code Section 27200-27207 provides noise limits for vehicles operated in California. For vehicles over 10,000 pounds noise is limited to 88 dB for vehicles manufactured before 1973, 86 dB for vehicles manufactured before 1975, 83 dB for vehicles manufactured before 1988, and 80 dB for vehicles manufactured after 1987. All measurements are based at 50 feet from the vehicle.

California Vehicle Section 38365-38380 – Off-Road Vehicle Noise

California Vehicle Code Section 38365-38380 provides noise limits for off-highway motor vehicles operated in California. 92 dBA for vehicles manufactured before 1973, 88 dBA for vehicles manufactured before 1975, 86 dBA for vehicles manufactured before 1986, and 82 dBA for vehicles manufactured after December 31, 1985. All measurements are based at 50 feet from the vehicle.

Vibration Standards

Title 14 of the California Administrative Code Section 15000 requires that all state and local agencies implement the California Environmental Quality Act (CEQA) Guidelines, which requires the analysis of exposure of persons to excessive groundborne vibration. However, no statute has been adopted by the state that quantifies the level at which excessive groundborne vibration occurs.

The *Transportation- and Construction Vibration Guidance Manual*, prepared by Caltrans, April 2020, provides practical guidance to Caltrans engineers, planners, and consultants who must address vibration issues associated with the construction, operation, and maintenance of Caltrans projects. However, this manual is also used as a reference point by many lead agencies and CEQA practitioners throughout California, as it provides numeric thresholds for vibration impacts. Thresholds are established for continuous (construction-related) and transient (transportation-related) sources of vibration, which found that the human response becomes distinctly perceptible at 0.25 inch per second PPV for transient sources and 0.04 inch per second PPV for continuous sources.

4.3 Local Regulations – City of Eastvale

The *City of Eastvale General Plan* (General Plan), approved June 13, 2012, and the Eastvale, CA Code of Ordinances (Municipal Code), January 7, 2022, establishes the following applicable policies related to noise and vibration.

General Plan

The following applicable goals and policies to the proposed project are from the Noise Element of the General Plan.

Goal N-1: Prevent and mitigate the adverse impacts of excessive noise exposure on the residents, employees, visitors, and noise-sensitive uses of Eastvale.

Goal N-3: Ensure that noise sensitive uses do not encroach into area needed by noise generating uses.

Goal N-4: Locate noise sources away from existing noise sensitive land uses unless appropriate noise control measures are provided.

Policy N-3: Consider the following uses to be sensitive to noise and vibration, and discourage these uses in areas where existing or projected future noise levels would be in excess of 65 CNEL and/or vibration would be more than 0.0787 Peak Particle Velocity (inches/second)

- Schools;
- Hospitals;
- Rest Homes;
- Long Term Care Facilities;
- Mental Care Facilities;
- Residential Uses;
- Libraries;
- Passive Recreation Uses; and
- Places of Worship

Policy N-4: Require noise sensitive land uses proposed in areas where existing or projected future noise levels would be in excess of 65 CNEL to have an acoustical specialist prepare a study of the noise problems and recommend structural and site design features that will adequately mitigate the noise problem.

Policy N-5: Require that exterior noise forecasts use the appropriate Level of Service for the adjacent roadways, or a 20-year projection of traffic volumes (whichever is greater) for future noise forecasts.

Policy N-6: Mitigate exterior noise levels to the levels shown in Table N-3 (Table C) to the extent feasible.

Table C – City of Eastvale Noise Compatibility by Land Use Designation¹

Land Use Designations	Completely Compatible	Tentatively Compatible	Normally Incompatible	Completely Incompatible
All Residential (Single- and Multi-Family)	Less than 60 dBA	60 – 70 dBA	70 – 75 dBA	Greater than 75 dBA
All Non-Residential (Commercial, Industrial & Institutional)	Less than 70 dBA	70 – 75 dBA	Greater than 75 dBA	...(2)
Public Parks (Lands on which public parks are located or planned)	Less than 65 dBA	65 – 70 dBA	70 – 75 dBA	Greater than 75 dBA

Notes:

¹ All noise levels shown in this Table are designated CNEL.

² To be determined as part of the project review process.

Source: City of Eastvale, 2012.

Policy N-7: Table N-4 (Table D) provides the City’s standards for maximum exterior non-transportation noise levels to which land designated for residential land uses may be exposed for any 30-minute period on any day. Where existing ambient noise levels

exceed these standards, the ambient noise level shall be the highest allowable noise level as measured in dBA Leq (30 minutes).

Note to Reader: Public schools are not regulated by the City; therefore, no noise standards for public schools are provided in this Chapter.

Table D – City of Eastvale Exterior Noise Level Standards for Non-Transportation Noise¹

Land Use Type	Time Period	Maximum Noise Level (dBA)
Single-Family Homes and Duplexes	10 p.m. to 7 a.m.	50
	7 a.m. to 10 p.m.	60
Multiple Residential 3 or More Units per Building (Triplex +)	10 p.m. to 7 a.m.	55
	7 a.m. to 10 p.m.	60

Notes:

¹ Measured as dBA Leq (30 minutes).

Policy N-9: The City may impose exterior noise standards which are less restrictive than those specified in Table N-4, provided that:

- 1) The noise impact on the residential or other noise-sensitive use is addressed in an environmental analysis and at least one outdoor area meets the standards; and
- 2) A finding is made by the approving body specifying why the exception would not be detrimental to the public health, safety and general welfare; and
- 3) The exception would not adversely affect the character of the surrounding development.
- 4) The exception would not be injurious to adjacent uses, property and improvements; and,
- 5) Alternatives have been considered but none are technologically feasible for the proposal and,
- 6) Interior noise levels resulting from and external source will be no more than 45 dBA CNEL from 7 a.m. to 10 p.m.; and,
- 7) Residents of noise sensitive uses are informed of the proposal during the review stage and prior to approval.

Policy N-10: Table N-5 (Table E): Maximum Acceptable Interior Noise Levels Created by Exterior Noise Sources provides the City’s standards for acceptable indoor noise levels for various types of land uses. These standards should receive special attention when projects are considered in “Tentatively Compatible” or “Normally Incompatible” areas.

- Noise created inside a use listed below shall not count toward the acceptable noise levels to be maintained in accordance with this policy.

Table E – Maximum Acceptable Interior Noise Levels Created by Exterior Noise Sources

Land Use Type	Acceptable Noise Level (dBA CNEL)
Residential Living and Sleeping Areas	45 dBA
Residential Living and Sleeping Areas where the dwelling unit is subject to noise from railroad tracks, aircraft overflights, or similar sources which produce clearly identifiable, discrete noise events (such as the passing of a trains as opposed to relatively steady or constant noise sources such as roadways)	40 dBA
Private & Semi Private Classrooms ⁽¹⁾	55 dBA
All Places of Work Other than School Classrooms	Conform with applicable state and federal workplace safety standards

Notes:

¹ Standards for public schools are set and enforced by the State of California and are not regulated by the City of Eastvale.

Source: City of Eastvale, 2012.

Policy N-11: Developers of new residential or other noise-sensitive uses which are placed in environments subject to existing or projected noise that exceeds the “completely compatible” guidelines in Table N-3 (see Table C) shall be responsible for ensuring that acceptable exterior and interior noise levels will be achieved.

Policy N-22: Ensure that construction activities are regulated to establish hours of operation in order to prevent and/or mitigate the generation of excessive or adverse noise impacts on surrounding areas.

Policy N-23: Condition subdivision and other land development approval adjacent to developed/occupied noise-sensitive land uses to require the developer to submit a construction-related noise mitigation plan to the City for review and approval prior to issuance of a grading permit. The plan must depict the location of construction equipment and specify how the noise from this equipment will be mitigated during construction of this project, through the use of such methods as:

- a) Temporary noise attenuation fences;
- b) Preferential location of equipment
- c) Length of equipment use and idling time; and,
- d) Use of current noise suppression technology and equipment.

Policy N-24: Require that all construction equipment be kept properly tuned and use noise reduction features (e.g. mufflers and engine shrouds) that are no less effective than those originally installed by the manufacturer.

City of Eastvale Municipal Code

The City of Eastvale Municipal Code establishes the following applicable standards for new residential development related to noise and vibration.

Section 8.52.020 - Exemptions

Sound emanating from the following sources is exempt from the provisions of this chapter:

- (9) Private construction projects located within one-quarter of a mile from an inhabited dwelling, provided that construction does not occur between the hours of:
 - a. 6:00 p.m. and 6:00 a.m. during the months of June through September; and
 - b. 6:00 p.m. and 7:00 a.m. during the months of October through May;
- (10) Property maintenance, including, but not limited to, the operation of lawnmowers, leaf blowers, etc., provided such maintenance occurs between the hours of 7:00 a.m. and 8:00 p.m.;
- (12) Heating and air conditioning equipment.

Section 8.52.040 – General sound level standards

No person shall create any sound, or allow the creation of any sound, on any property that causes the exterior sound level on any other occupied property to exceed the sound level standards set forth in the following table:

Table F – City of Eastvale Municipal Code Sound Level Standards

General Plan Foundation Component			Maximum Decibel Level	
Land Use Designation		Density	7:00 a.m. – 10:00 p.m.	10:00 p.m. – 7:00 a.m.
General Plan	Land Use Designation Name	(per acre)		
MDR	Medium-Density Residential	2-5	55	45
MHDR	Medium High-Density Residential	5-8	55	45
HDR	High-Density Residential	8-14	55	45
PF	Public Facility		65	45
REC	Recreation		45	45

Source: City of Eastvale, 2015.

Section 120.05.130 – Noise, odor and vibration performance standards

- a) *Applicability.* The standards of this section apply to all new and existing land uses within the city, unless otherwise exempted.
- b) *Noise standards.* All uses shall comply with the noise standards set forth in the city’s general plan and within the city’s noise ordinance (see chapter 8.52).
- d) *Vibration standards.* Uses shall be operated in compliance with the following provisions:
 - (1) Uses, activities and processes shall not generate vibrations that cause discomfort or annoyance to reasonable persons of normal sensitivity or which endanger the comfort, repose, health or peace of residents whose property abuts the property lines of the subject parcel.
 - (3) Vibrations from temporary construction/demolition and vehicles that leave the subject parcel (e.g., trucks, trains and aircraft) are exempt from the provisions of this section.

5.0 EXISTING NOISE CONDITIONS

To determine the existing noise levels, noise measurements have been taken in the vicinity of the project site. The field survey noted that noise within the proposed project area is generally characterized by vehicle traffic on Schleisman Road that is adjacent to the north side of the project site and from Orange Street that is adjacent to the south side of the project site. There is also noise created from Eastvale Elementary School, adjacent to the east side of the project site. The following describes the measurement procedures, measurement locations, noise measurement results, and the modeling of the existing noise environment.

5.1 Noise Measurement Equipment

The noise measurements were taken using three Larson Davis Model LXT1 Class 1 sound level meters programmed in “slow” mode to record the sound pressure level at 1-second intervals for 24 hours in “A” weighted form. In addition, the L_{eq} averaged over the entire measuring time and L_{max} were recorded with the three sound level meters. The sound level meters and microphones were mounted on fences, were placed between four and six feet above the ground and were equipped with windscreens during all measurements. The noise meters were calibrated before and after the monitoring using a Larson Davis Cal200 calibrator. All noise level measurement equipment meets American National Standards Institute (ANSI) specifications for sound level meters (ANSI S1.4-2014 standard).

Noise Measurement Locations

The noise monitoring locations were selected in order to obtain noise levels on the project site and at the nearest residential uses located on the west side of the project site and at the school located on the east side of the project site. Descriptions of the noise monitoring sites are provided below in Table G and are shown in Figure 3. Appendix A includes a photo index of the study area and noise level measurement locations.

Noise Measurement Timing and Climate

The noise measurements were recorded between 4:09 p.m. on Thursday, December 9, 2021 and 4:21 p.m. on Friday, December 10, 2021. When the noise measurements were started the sky was cloudy, the temperature was 56 degrees Fahrenheit, the humidity was 71 percent, barometric pressure was 29.20 inches of mercury, and the wind was blowing around three miles per hour. Overnight, the temperature dropped to 43 degrees Fahrenheit and the humidity peaked at 95 percent. At the conclusion of the noise measurements, the sky was partly cloudy, the temperature was 61 degrees Fahrenheit, the humidity was 47 percent, barometric pressure was 29.44 inches of mercury, and there was no wind.

5.2 Noise Measurement Results

The results of the noise level measurements are presented in Table G. The measured sound pressure levels in dBA have been used to calculate the minimum and maximum L_{eq} averaged over 1-hour intervals. Table G also shows the L_{eq} , L_{max} , and CNEL, based on the entire measurement time. The CNEL was calculated through use of the hourly L_{eq} that was entered into Equation 2-23 from *Technical Noise Supplement to the Traffic Noise Analysis Protocol (TeNS)*, prepared by Caltrans, September 2013. The noise monitoring data printouts are included in Appendix B. Figure 4 shows a graph of the 24-hour noise measurements.

Table G – Existing (Ambient) Noise Level Measurements

Site No.	Site Description	Average (dBA L _{eq})		1-hr Average (dBA L _{eq} /Time)		24-hr dBA CNEL
		Daytime ¹	Nighttime ²	Minimum	Maximum	
1	Located on a fence near the northeast corner of the project site, approximately 90 feet south of Schleisman Road centerline.	57.4	53.6	47.8 1:43 a.m.	60.4 6:59 a.m.	61.1
2	Located on a fence on the east side of the project site and adjacent to the bike parking area at Eastvale Elementary School and approximately 180 feet north of Orange Street centerline.	56.2	49.1	43.2 11:43 p.m.	63.4 11:39 a.m.	57.7
3	Located on a fence near the southwest corner of the project site and shared property line with the home at 7092 Calina Street, approximately 35 feet north of Orange Street centerline.	59.5	51.7	44.5 1:44 a.m.	64.2 7:33 a.m.	60.9

Notes:

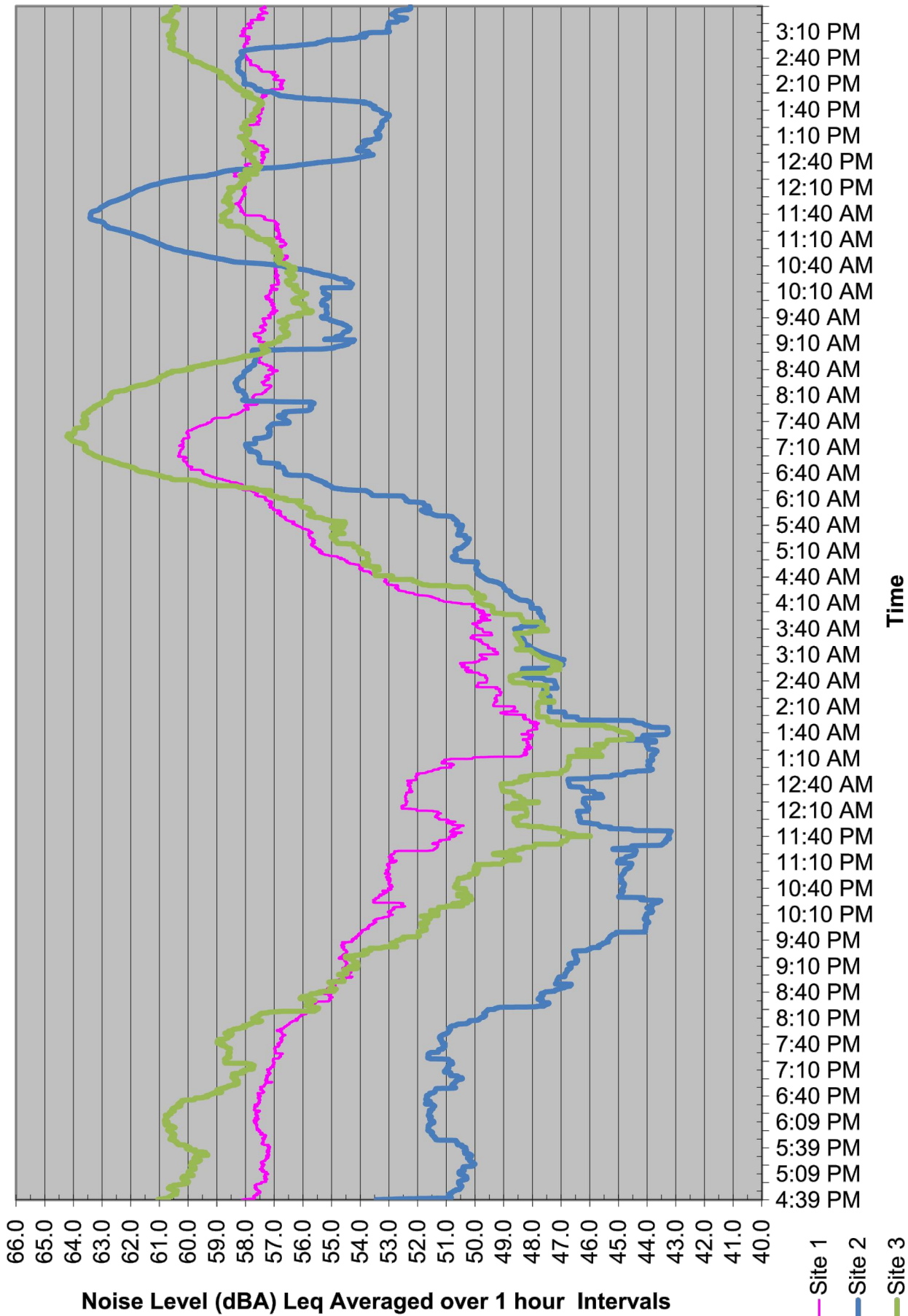
¹ Daytime defined as 7:00 a.m. to 10:00 p.m. (Section 8.52.040 of the Municipal Code)

² Nighttime define as 10:00 p.m. to 7:00 a.m. (Section 8.52.040 of the Municipal Code)

Source: Noise measurements taken between Thursday, December 9, 2021 and Friday, December 10, 2021.



Figure 3
Field Noise Monitoring Locations



SOURCE: Three Larson Davis Model LXT1, Type 1 Sound Level Meters.



Figure 4
Field Noise Measurements Graph

6.0 MODELING PARAMETERS AND ASSUMPTIONS

6.1 Construction Noise

The noise impacts from construction of the proposed project have been analyzed through use of the FHWA’s Roadway Construction Noise Model (RCNM). The FHWA compiled noise measurement data regarding the noise generating characteristics of several different types of construction equipment used during the Central Artery/Tunnel project in Boston. Table H below provides a list of the construction equipment anticipated to be used for each phase of construction that was obtained from the *Air Quality, Energy, and Greenhouse Gas Impact Analysis Magnolia Ranch Residential Project (Air Quality Analysis)*, prepared by Vista Environmental, July 26, 2022.

Table H – Construction Equipment Noise Emissions and Usage Factors

Equipment Description	Number of Equipment	Acoustical Use Factor ¹ (percent)	Spec 721.560 Lmax at 50 feet ² (dBA, slow ³)	Actual Measured Lmax at 50 feet ⁴ (dBA, slow ³)
Demolition				
Concrete/Industrial Saws	1	20	90	90
Excavators	3	40	85	81
Rubber Tired Dozers	2	40	85	82
Site Preparation				
Rubber Tired Dozers	3	40	85	82
Crawler Tractors	4	40	84	N/A
Grading				
Excavators	2	40	85	81
Grader	1	40	85	83
Rubber Tired Dozer	1	40	85	82
Scrapers	2	40	85	84
Crawler Tractors	2	40	84	N/A
Building Construction				
Crane	1	16	85	81
Forklift (Gradall)	3	40	85	83
Generator	1	50	82	81
Tractor	1	40	84	N/A
Front End Loader	1	40	80	79
Backhoe	1	40	80	78
Welder	1	40	73	74
Paving				
Paver	2	50	85	77
Paving Equipment	2	50	85	77
Roller	2	20	85	80
Architectural Coating				
Air Compressor	1	40	80	78

Notes:

¹ Acoustical use factor is the percentage of time each piece of equipment is operational during a typical workday.

² Spec 721.560 is the equipment noise level utilized by the RCNM program.

³ The “slow” response averages sound levels over 1-second increments. A “fast” response averages sound levels over 0.125-second increments.

⁴ Actual Measured is the average noise level measured of each piece of equipment during the Central Artery/Tunnel project in Boston, Massachusetts primarily during the 1990s.
Source: Federal Highway Administration, 2006 and CalEEMod default equipment mix.

Table H shows the associated measured noise emissions for each piece of equipment from the RCNM model and measured percentage of typical equipment use per day. Construction noise impacts to the nearby sensitive receptors have been calculated according to the equipment noise levels and usage factors listed Table H and through use of the RCNM. For each phase of construction, all construction equipment was analyzed based on being placed in the middle of the project site, which is based on the analysis methodology detailed in FTA Manual for a General Assessment. However, in order to provide a conservative analysis, all equipment was analyzed, instead of just the two noisiest pieces of equipment as detailed in the FTA Manual. The RCNM model printouts are provided in Appendix C.

6.2 Operations-Related Noise

FHWA Model Methodology

The proposed project would result in increases in traffic noise to the nearby roadways as well as introduce new sensitive receptors to the project site. The project impacts to the offsite roadways were analyzed through use of the FHWA Traffic Noise Prediction Model - FHWA-RD-77-108 (FHWA Model). The FHWA Model arrives at a predicted noise level through a series of adjustments to the Reference Energy Mean Emission Level (REMEL). Adjustments are then made to the reference energy mean emission level to account for: the roadway active width (i.e., the distance between the center of the outermost travel lanes on each side of the roadway), the total average daily traffic (ADT) and the percentage of ADT which flows during the day, evening and night, the travel speed, the vehicle mix on the roadway, which is a percentage of the volume of automobiles, medium trucks and heavy trucks, the roadway grade, the angle of view of the observer exposed to the roadway and site conditions ("hard" or "soft" relates to the absorption of the ground, pavement or landscaping). The following section provides a discussion of the software and modeling input parameters used in this analysis and a discussion of the resultant existing noise model.

FHWA Model Traffic Noise Prediction Model Inputs

The roadway parameters used for this study are presented in Table I. The roadway classifications are based on the City's General Plan Circulation Element. The roadway speeds are based on the posted speed limits. The distance to the nearest sensitive receptor was determined by measuring the distance from the roadway centerline to the nearest residence. Since the study area is located in a suburban environment and landscaping or natural vegetation exists along the sides of the nearby roads, soft site conditions were modeled.

Table I – FHWA Model Roadway Parameters

Roadway	Segment	General Plan Classification	Vehicle Speed (MPH)	Distance to Nearest Receptor ¹ (feet)
Sumner Avenue	North of Schleisman Road	Major	45	85
Sumner Avenue	South of Schleisman Road	Major	45	45
Sumner Avenue	South of Orange Street	Major	45	60
Scholar Way	North of Schleisman Road	Secondary	35	70
Scholar Way	South of Schleisman Road	Secondary	35	60

Roadway	Segment	General Plan Classification	Vehicle Speed (MPH)	Distance to Nearest Receptor ¹ (feet)
Scholar Way	South of Orange Street	Secondary	35	60
Scholar Way	South of Baltimore Street	Secondary	35	75
Hamner Avenue	North of Schleisman Road	Urban Arterial	45	90
Hamner Avenue	South of Schleisman Road	Urban Arterial	45	100
Schleisman Road	West of Sumner Avenue	Major	45	70
Schleisman Road	East of Sumner Avenue	Urban Arterial	45	80
Schleisman Road	West of Scholar Way	Urban Arterial	45	80
Schleisman Road	East of Scholar Way	Urban Arterial	45	80
Orange Street	East of Sumner Avenue	Collector	30	40
Orange Street	West of Scholar Way	Collector	30	100

Notes:

¹ Distance measured from nearest offsite residential structure to centerline of roadway.

Source: City of Eastvale, 2012; Vista Environmental.

The average daily traffic (ADT) volumes were obtained from the *Project Scoping Agreement for Land Use Project – PLN22-20024* (Traffic Scoping Agreement), prepared by Urban Crossroads, June 27, 2022. The ADT volumes used in this analysis are shown in Table J.

Table J – Average Daily Traffic Volumes

Roadway	Segment	Average Daily Traffic Volumes					
		Existing	Existing + Project	2024 No Project	2024 + Project	2040 No Project	2040 + Project
Sumner Avenue	North of Schleisman Road	10,950	11,050	11,800	11,900	12,500	12,550
Sumner Avenue	South of Schleisman Road	9,600	9,750	10,600	10,750	11,750	11,900
Sumner Avenue	South of Orange Street	8,400	8,400	9,000	9,000	9,300	9,350
Scholar Way	North of Schleisman Road	7,450	7,550	8,050	8,150	8,150	8,300
Scholar Way	South of Schleisman Road	6,950	7,100	7,550	7,750	7,600	7,800
Scholar Way	South of Orange Street	7,200	7,200	7,800	7,850	8,200	8,250
Scholar Way	South of Baltimore Street	7,850	7,850	8,500	8,550	8,850	8,900
Hamner Avenue	North of Schleisman Road	24,600	24,650	28,800	28,800	29,800	29,850
Hamner Avenue	South of Schleisman Road	24,650	24,700	28,600	28,650	29,650	29,700
Schleisman Road	West of Sumner Avenue	18,400	18,500	20,100	20,150	30,900	31,000
Schleisman Road	East of Sumner Avenue	9,600	9,600	10,900	10,900	28,300	28,300
Schleisman Road	West of Scholar Way	9,400	9,400	10,750	10,750	33,000	33,000
Schleisman Road	East of Scholar Way	8,550	8,600	9,850	9,900	26,350	26,400
Orange Street	East of Sumner Avenue	1,100	1,250	1,350	1,500	1,650	1,850
Orange Street	West of Scholar Way	2,450	2,650	2,750	3,000	2,900	3,150

Source: City of Eastvale, 2012; Urban Crossroads, 2022.

The vehicle mixes used in the FHWA-RD-77-108 Model are shown in Table K and is based on the typical vehicle mixes observed in Riverside County. The vehicle mixes provides the hourly distribution percentages of automobiles, medium trucks, and heavy trucks for input into the FHWA model.

Table K – Roadway Vehicle Mixes

Vehicle Type	Traffic Flow Distributions			Overall
	Day (7 a.m. to 7 p.m.)	Evening (7 p.m. to 10 p.m.)	Night (10 p.m. to 7 a.m.)	
Secondary, Collector or Smaller				
Automobiles	73.60%	13.60%	10.22%	97.42%
Medium Trucks	0.90%	0.04%	0.9%	1.84%
Heavy Trucks	0.35%	0.04%	0.35%	0.74%
Major, Arterial Highways, and Expressways				
Automobiles	69.50%	12.90%	9.60%	92.00%
Medium Trucks	1.44%	0.06%	1.50%	3.00%
Heavy Trucks	2.40%	0.10%	2.50%	5.00%

Source: County of Riverside, 2015.

FHWA Model Source Assumptions

To assess the roadway noise generation in a uniform manner, all vehicles are analyzed at the single lane equivalent acoustic center of the roadway being analyzed. In order to determine the height above the road grade where the noise is being emitted from, each type of vehicle has been analyzed independently with autos at road grade, medium trucks at 2.3 feet above road grade, and heavy trucks at 8 feet above road grade. These elevations were determined through a noise-weighted average of the elevation of the exhaust pipe, tires and mechanical parts in the engine, which are the primary noise emitters from a vehicle.

6.3 Vibration

Construction activity can result in varying degrees of ground vibration, depending on the equipment used on the site. Operation of construction equipment causes ground vibrations that spread through the ground and diminish in strength with distance. Buildings in the vicinity of the construction site respond to these vibrations with varying results ranging from no perceptible effects at the low levels to damage at the highest levels. Table L gives approximate vibration levels for particular construction activities. The data in Table L provides a reasonable estimate for a wide range of soil conditions.

Table L – Vibration Source Levels for Construction Equipment

Equipment		Peak Particle Velocity (inches/second)	Approximate Vibration Level (L_v)at 25 feet
Pile driver (impact)	Upper range	1.518	112
	typical	0.644	104
Pile driver (sonic)	Upper range	0.734	105
	typical	0.170	93
Clam shovel drop (slurry wall)		0.202	94
Vibratory Roller		0.210	94
Hoe Ram		0.089	87
Large bulldozer		0.089	87
Caisson drill		0.089	87
Loaded trucks		0.076	86
Jackhammer		0.035	79
Small bulldozer		0.003	58

Source: Federal Transit Administration, 2018.

The construction-related vibration impacts have been calculated through the vibration levels shown above in Table L and through typical vibration propagation rates. The equipment assumptions were based on the equipment lists provided above in Table H.

7.0 IMPACT ANALYSIS

7.1 CEQA Thresholds of Significance

Consistent with the California Environmental Quality Act (CEQA) and the State CEQA Guidelines, a significant impact related to noise would occur if a proposed project is determined to result in:

- Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;
- Generation of excessive groundborne vibration or groundborne noise levels; or
- For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels.

7.2 Generation of Noise Levels in Excess of Standards

The proposed project would not generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies. The following section calculates the potential noise emissions associated with the temporary construction activities and long-term operations of the proposed project and compares the noise levels to the City standards.

Construction-Related Noise

The construction activities for the proposed project are anticipated to include demolition of the existing ranch house with barn and associated fencing and facilities for livestock/horses, site preparation and grading of the 10.0 gross acre project site, building construction of the 41 single-family homes, paving of the onsite roads and road improvements to the portion of Orange Street that is adjacent to the project site, and application of architectural coatings.

Noise impacts from construction activities associated with the proposed project would be a function of the noise generated by construction equipment, equipment location, sensitivity of nearby land uses, and the timing and duration of the construction activities. The nearest sensitive receptors to the project site are the single-family homes that are located as near as 25 feet west of the project site. The nearest structure at Eastvale Elementary School is a covered lunch area that is as near as 25 feet east of the project site.

Section 8.52.020(9) of the City's Municipal Code exempts construction noise that occurs between 6:00 a.m. and 6:00 p.m. June thru September and between 7:00 a.m. and 6:00 p.m. October thru May. However, General Plan Policy N-23, requires that infill development projects to prepare a Construction Noise Mitigation Plan prior to obtaining a grading permit. The Plan will require the use temporary noise barriers, designated equipment staging areas, limits on idling and requirement of all equipment using mufflers. Project Design Feature 1 has been included in this analysis to ensure implementation of General Plan Policy N-23.

The City construction noise standards do not provide any limits to the noise levels that may be created from construction activities and even with adherence to the City standards, the resultant construction

noise levels may result in a significant substantial temporary noise increase to the nearby sensitive receptors. In order to determine if the proposed construction activities would create a significant substantial temporary noise increase, the FTA construction noise criteria thresholds detailed above in Section 4.1 have been utilized, which shows that a significant construction noise impact would occur if construction noise exceeds 80 dBA during the daytime at any of the nearby homes and school.

Construction noise impacts to the nearby sensitive receptors have been calculated through use of the RCNM and the parameters and assumptions detailed in Section 6.1 of this report including Table H that shows the anticipated construction equipment per phase. In order to account for the existing 6 to 7 foot high concrete masonry unit (cmu) wall on the west side of the project site, 5 dB of estimated shielding was added to the RCNM model for the homes to the west. The results are shown below in Table M and the RCNM printouts are provided in Appendix C.

Table M – Construction Noise Levels at the Nearest Sensitive Receptors

Construction Phase	Construction Noise Level (dBA Leq) at:	
	Nearest Homes to the West ¹	Nearest School to the East ²
Demolition	65	70
Site Preparation	66	71
Grading	67	72
Building Construction	65	70
Paving	60	65
Painting	52	57
FTA Construction Noise Threshold⁴	80	80
Exceed Thresholds?	No	No

¹ The nearest homes to the west are located as near as 340 feet from the center of the project site. 5 dB of estimated shielding was included to account for the 6 to 7 foot high cmu wall on the west side of the project site.

² The nearest school structure to the east is located as near as 340 feet from the center of the project site.

⁴ The FTA Construction noise thresholds are detailed above in Table B.

Source: RCNM, Federal Highway Administration, 2006

Table M shows that the greatest noise impacts would occur during the grading phase, with a noise level as high as 72 dBA Leq at the school to the east and 67 dBA Leq at the nearest homes to the west. Table M also shows that none of the construction phases would exceed the FTA noise standard of 80 dB at the nearby homes or school. Therefore, through adherence to the allowable construction times detailed in Section 8.52.020(9) of the Municipal Code and through implementation of Project Design Feature 1, that requires the preparation of a construction-related noise mitigation plan, prior to the issuance of the grading plan for the proposed project, the proposed project would not create a substantial temporary increase in ambient noise levels from construction of the proposed project. Impacts would be less than significant.

Operational-Related Noise

The proposed project would consist of a residential development with 41 single-family homes. Potential noise impacts associated with the operations of the proposed project would be from project-generated vehicular traffic on the nearby roadways. In addition, the proposed development would be adjacent to Schleisman Road and adjacent to Eastvale Elementary School, which may create exterior and interior noise levels in excess of City standards at the proposed homes. The noise impacts to the nearby existing homes and proposed homes have been analyzed separately below.

Roadway Vehicular Noise Impact to Nearby Homes

Vehicle noise is a combination of the noise produced by the engine, exhaust and tires. The level of traffic noise depends on three primary factors (1) the volume of traffic, (2) the speed of traffic, and (3) the number of trucks in the flow of traffic. The proposed project does not propose any uses that would require a substantial number of truck trips and the proposed project would not alter the speed limit on any existing roadway so the proposed project’s potential offsite noise impacts have been focused on the noise impacts associated with the change of volume of traffic that would occur with development of the proposed project.

Neither the General Plan nor the Municipal Code defines what constitutes a “substantial permanent increase to ambient noise levels”. As such, this impact analysis has utilized guidance from the Federal Transit Administration for a moderate impact that has been detailed above in Table A that shows that the project contribution to the noise environment can range between 0 and 7 dB, which is dependent on the existing roadway noise levels.

The potential offsite traffic noise impacts created by the on-going operations of the proposed project have been analyzed through utilization of the FHWA model and parameters described above in Section 6.2 and the FHWA model traffic noise calculation spreadsheets are provided in Appendix D. The proposed project’s potential offsite traffic noise impacts have been analyzed for the existing year, opening year 2024, and future year 2040 scenarios that are discussed separately below.

Existing Year Conditions

The proposed project’s potential offsite traffic noise impacts have been calculated through a comparison of the Existing scenario to the Existing With Project scenario. The results of this comparison are shown in Table N.

Table N – Existing Year Traffic Noise Contributions

Roadway	Segment	dBA CNEL at Nearest Receptor ¹			Increase Threshold ²
		Existing	Existing Plus Project	Project Contribution	
Sumner Avenue	North of Schleisman Road	63.0	63.1	0.1	+2 dBA
Sumner Avenue	South of Schleisman Road	67.4	67.5	0.1	+1 dBA
Sumner Avenue	South of Orange Street	64.4	64.4	0.0	+2 dBA
Scholar Way	North of Schleisman Road	59.3	59.4	0.1	+3 dBA
Scholar Way	South of Schleisman Road	60.1	60.2	0.1	+2 dBA
Scholar Way	South of Orange Street	60.3	60.3	0.0	+2 dBA
Scholar Way	South of Baltimore Street	59.1	59.1	0.0	+3 dBA
Hamner Avenue	North of Schleisman Road	66.6	66.6	0.0	+1 dBA
Hamner Avenue	South of Schleisman Road	65.8	65.8	0.0	+1 dBA
Schleisman Road	West of Sumner Avenue	66.7	66.7	0.0	+1 dBA
Schleisman Road	East of Sumner Avenue	63.5	63.5	0.0	+2 dBA
Schleisman Road	West of Scholar Way	63.4	63.4	0.0	+2 dBA
Schleisman Road	East of Scholar Way	63.0	63.0	0.0	+2 dBA
Orange Street	East of Sumner Avenue	52.7	53.3	0.6	+5 dBA
Orange Street	West of Scholar Way	50.1	50.4	0.3	+5 dBA

Notes:

¹ Distance to nearest residential use shown in Table I, does not take into account existing noise barriers.

² Increase Threshold obtained from the FTA's allowable noise impact exposures detailed above in Table A.

Source: FHWA Traffic Noise Prediction Model FHWA-RD-77-108.

Table N shows that the proposed project's permanent roadway noise increases to the nearby homes from the generation of additional vehicular traffic would not exceed the FTA's allowable increase thresholds detailed above. Therefore, the proposed project would not result in a substantial permanent increase in ambient noise levels for the existing conditions. Impacts would be less than significant.

Opening Year 2024 Conditions

The proposed project's potential offsite traffic noise impacts have been calculated through a comparison of the opening year 2024 scenario to the opening year 2024 with project scenario. The results of this comparison are shown in Table O.

Table O – Opening Year 2024 Traffic Noise Contributions

Roadway	Segment	dBA CNEL at Nearest Receptor ¹			Increase Threshold ²
		Year 2024	Year 2024 Plus Project	Project Contribution	
Sumner Avenue	North of Schleisman Road	63.3	63.4	0.1	+2 dBA
Sumner Avenue	South of Schleisman Road	67.8	67.9	0.1	+1 dBA
Sumner Avenue	South of Orange Street	64.7	64.7	0.0	+1 dBA
Scholar Way	North of Schleisman Road	59.7	59.7	0.0	+2 dBA
Scholar Way	South of Schleisman Road	60.5	60.6	0.1	+2 dBA
Scholar Way	South of Orange Street	60.6	60.6	0.0	+2 dBA
Scholar Way	South of Baltimore Street	59.4	59.5	0.1	+3 dBA
Hamner Avenue	North of Schleisman Road	67.3	67.3	0.0	+1 dBA
Hamner Avenue	South of Schleisman Road	66.4	66.4	0.0	+1 dBA
Schleisman Road	West of Sumner Avenue	67.1	67.1	0.0	+1 dBA
Schleisman Road	East of Sumner Avenue	64.0	64.0	0.0	+2 dBA
Schleisman Road	West of Scholar Way	64.0	64.0	0.0	+2 dBA
Schleisman Road	East of Scholar Way	63.6	63.6	0.0	+2 dBA
Orange Street	East of Sumner Avenue	53.6	54.1	0.5	+5 dBA
Orange Street	West of Scholar Way	50.6	51.0	0.4	+5 dBA

Notes:

¹ Distance to nearest residential use shown in Table I, does not take into account existing noise barriers.

² Increase Threshold obtained from the FTA's allowable noise impact exposures detailed above in Table A.

Source: FHWA Traffic Noise Prediction Model FHWA-RD-77-108.

Table O shows that the proposed project's permanent roadway noise increases to the nearby homes from the generation of additional vehicular traffic would not exceed the FTA's allowable increase thresholds detailed above. Therefore, the proposed project would not result in a substantial permanent increase in ambient noise levels for the opening year 2024 conditions. Impacts would be less than significant.

Future Year 2040 Conditions

The proposed project's potential offsite traffic noise impacts have been calculated through a comparison of the future year 2040 scenario to the future year 2040 with project scenario. The results of this comparison are shown in Table P.

Table P – Future Year 2040 Traffic Noise Contributions

Roadway	Segment	dBA CNEL at Nearest Receptor ¹			
		Year 2040	Year 2040 Plus Project	Project Contribution	Increase Threshold ²
Sumner Avenue	North of Schleisman Road	63.6	63.6	0.0	+2 dBA
Sumner Avenue	South of Schleisman Road	68.3	68.3	0.0	+1 dBA
Sumner Avenue	South of Orange Street	64.9	64.9	0.0	+1 dBA
Scholar Way	North of Schleisman Road	59.8	59.8	0.0	+2 dBA
Scholar Way	South of Schleisman Road	60.5	60.7	0.2	+2 dBA
Scholar Way	South of Orange Street	60.9	60.9	0.0	+2 dBA
Scholar Way	South of Baltimore Street	59.6	59.7	0.1	+2 dBA
Hamner Avenue	North of Schleisman Road	67.4	67.4	0.0	+1 dBA
Hamner Avenue	South of Schleisman Road	66.6	66.6	0.0	+1 dBA
Schleisman Road	West of Sumner Avenue	68.9	68.9	0.0	+1 dBA
Schleisman Road	East of Sumner Avenue	68.2	68.2	0.0	+1 dBA
Schleisman Road	West of Scholar Way	68.8	68.8	0.0	+1 dBA
Schleisman Road	East of Scholar Way	67.8	67.9	0.1	+1 dBA
Orange Street	East of Sumner Avenue	54.5	55.0	0.5	+5 dBA
Orange Street	West of Scholar Way	50.9	51.2	0.3	+5 dBA

Notes:

¹ Distance to nearest residential use shown in Table I, does not take into account existing noise barriers.

² Increase Threshold obtained from the FTA's allowable noise impact exposures detailed above in Table A.

Source: FHWA Traffic Noise Prediction Model FHWA-RD-77-108.

Table P shows that the proposed project's permanent roadway noise increases to the nearby homes from the generation of additional vehicular traffic would not exceed the FTA's allowable increase thresholds detailed above. Therefore, the proposed project would not result in a substantial permanent increase in ambient noise levels for the future year 2040 conditions. Impacts would be less than significant.

Noise Impacts to the Proposed Homes

The proposed project would consist of a residential development with 41 single-family homes. The proposed development would be adjacent to Schleisman Road to the north and adjacent to Eastvale Elementary School to the east, which may create exterior and interior noise levels in excess of City standards at the proposed homes. The roadway noise impacts and non-transportation noise impacts have been analyzed separately below.

Non-Transportation Noise Impacts to Proposed Homes

The noise impacts from Eastvale Elementary School are controlled by General Plan Policy N-7 that provides the City's standards for maximum exterior non-transportation noise levels. For the proposed single-family homes, General Plan Policy N-7 provides a noise standard of 60 dBA between 7 a.m. to 10 p.m. and 50 dBA between 10 p.m. to 7 a.m. at the exterior of the proposed single-family homes.

Noise Measurement 2 (see Table G above) is most representative of the noise created from the school, since it was located on the shared property line with the School, is in close proximity to the outdoor lunch area and playgrounds, and there are no roads in the immediate vicinity of Noise Measurement 2. Noise Measurement 2 recorded noise levels of 56.2 dBA Leq between 7 a.m. to 10 p.m. and 49.1 dBA Leq between 10 p.m. to 7 a.m.. As such, the noise created from the outdoor areas of the School are below the City’s non-transportation exterior noise standards for single-family homes provided in General Plan Policy N-7. Therefore, the non-transportation noise impacts created from Eastvale Elementary School to the proposed homes would be within the City noise standards. Impacts would be less than significant.

Roadway Noise Impacts to Proposed Homes

The north side of the proposed development would be adjacent to Schleisman Road. General Plan Policy N-6 requires exterior noise levels for new residential uses to be mitigated to the levels shown above in Table C that shows the “Completely Compatible” noise standard of less than 60 dBA, “Tentatively Compatible” 60 to 70 dBA, “Normally Incompatible” 70 to 75 dBA, and “Completely Incompatible” greater than 75 dBA. General Plan Policy N-11 requires developers of new residential uses where the noise exceeds the “Completely Compatible” noise standard to ensure acceptable exterior and interior noise levels. General Plan Policy N-10 details that the maximum acceptable interior noise level from roadway noise sources is 45 dBA CNEL.

It is anticipated that the primary source of noise impacts to the project site will be traffic noise from Schleisman Road that is adjacent to the north side of the project site. The proposed homes will also experience some background traffic noise impacts from the proposed project’s internal roadways and from Orange Street that is adjacent to the south side of the project site. As the traffic on these local streets would consist of low traffic volumes at slower speeds, the traffic noise from these roads would not make a significant contribution to the noise environment. As such, the noise levels from these roads were not analyzed. The FHWA traffic noise prediction model parameters used in this analysis are discussed above in detail in Section 6.2 and the FHWA model printouts are provided in Appendix G. The exterior and interior noise impacts to the proposed homes have been analyzed separately below.

Exterior Noise Impacts to Proposed Homes

The anticipated exterior noise levels have been calculated for the backyards of representative homes that are adjacent to Schleisman Road. For each backyard, the receptor was placed 10 feet behind the wall and 5 feet above the ground, which is based on the roadway noise analysis methodology provided in Appendix I-1 of the County of Riverside General Plan, December 8, 2015, since the City of Eastvale does not provide any roadway noise analysis standards to utilize. The calculated noise levels for backyards that are adjacent to Schleisman Road are shown below in Table R.

Table Q – Proposed Homes Exterior Noise Levels from Schleisman Road

Building Number	Exterior Noise Level Without Sound Walls (dBA CNEL)	Exceed City’s 60 dBA CNEL Threshold?	Exterior Noise Level With 6.5 Foot High Sound Wall (dBA CNEL)	Exceed City’s 60 dBA CNEL Threshold?
9	68.1	Yes	59.1	No
11	68.1	Yes	59.3	No
13	68.1	Yes	59.6	No
15	68.2	Yes	60.0	No
17	68.1	Yes	59.9	No

Notes:

Table R shows that without a sound wall, that the noise levels at all of the backyards adjacent to Schleisman Road would exceed the City's residential exterior noise standard of 60 dBA CNEL. This would be considered a significant impact.

Mitigation Measure 2 is provided that would require construction of a minimum 6.5 foot high cmu wall on the north side of all backyards that are adjacent to Schleisman Road. As shown in Table R, above, with implementation of Mitigation Measure 2, the proposed homes exterior noise levels would be within the City's 60 dBA CNEL residential exterior noise standard and would result in a less than significant impact.

Interior Noise Impacts to Proposed Homes

To assess the interior noise levels, the same proposed homes analyzed for the exterior private backyard analysis were also analyzed for their interior noise levels. The exterior noise level at the façade of the first and second floors were calculated through use of the same methodology detailed above for the outdoor noise calculations and the results are shown below in Table R. Table R also shows the interior noise levels calculated based on 25 dB of attenuation, which is the minimum exterior to interior noise reduction rate for new homes that are constructed to meet the required California Code of Regulations Title 24, Part 6 building energy-efficiency standards that require the installation of dual-paned windows as well as enhanced insulation requirements. The anticipated noise levels have been calculated at the facades of representative proposed homes to Schleisman Road and the results are shown below in Table R.

Table R – Proposed Homes Interior Noise Levels from Schleisman Road

Building Number	Floor	Road Noise Levels (dBA CNEL)		Exceed 45 dBA Interior Threshold?
		Exterior at Facade	Interior ¹	
9	First	58.9	33.9	No
	Second	66.9	40.4	No
11	First	58.2	33.2	No
	Second	65.4	40.4	No
13	First	58.8	33.8	No
	Second	65.7	40.7	No
15	First	60.0	35.0	No
	Second	66.9	41.9	No
17	First	58.3	33.3	No
	Second	64.3	39.3	No

Notes:

¹ Based on standard dual pane windows and doors with a 26 STC rating, which are required per Title 24 energy saving requirements.

Source: FHWA RD-77-108 Model.

Table R shows that the interior noise level of all homes adjacent to Schleisman Road would be within the City's 45 dBA CNEL interior noise standard. Impacts would be less than significant.

Level of Significance Before Mitigation

Potentially significant impact.

Mitigation Measures

Mitigation Measure 1:

The project applicant shall construct a minimum 6.5-foot high wall on the north side of Lots 9 through 28 that are adjacent to Schleisman Road. The walls shall be constructed of concrete masonry units (CMUs) and shall be free of any decorative cutouts or openings.

Level of Significance After Mitigation

Less than significant impact.

7.3 Generation of Excessive Groundborne Vibration

The proposed project would not expose persons to or generation of excessive groundborne vibration or groundborne noise levels. The following section analyzes the potential vibration impacts associated with the construction and operations of the proposed project.

Construction-Related Vibration Impacts

The construction activities for the proposed project are anticipated to include demolition of the existing ranch house with barn and associated fencing and facilities for livestock/horses, site preparation and grading of the 10.0 gross acre project site, building construction of the 41 single-family homes, paving of the onsite roads and road improvements to the portion of Orange Street that is adjacent to the project site, and application of architectural coatings.

Vibration impacts from construction activities associated with the proposed project would typically be created from the operation of heavy off-road equipment. The nearest sensitive receptors to the project site are the single-family homes that are located as near as 25 feet west of the project site. The nearest structure at Eastvale Elementary School is a covered lunch area that is as near as 25 feet east of the project site.

Section 120.05.130(e) of the Municipal Code provides a vibration standard for new development of any vibration that causes discomfort or annoyance to reasonable persons of normal sensitivity. However Section 120.05.130(e) of the Municipal Code exempts construction activities from this standard. Since neither the Municipal nor the General Plan provide a quantifiable vibration threshold for temporary construction activities, guidance from the *Transportation and Construction-Induced Vibration Guidance Manual*, prepared by Caltrans, April 2020, has been utilized, which defines the threshold of perception from transient sources such as off-road construction equipment at 0.25 inch per second peak particle velocity (PPV).

The primary source of vibration during construction would be from the operation of a bulldozer. From Table L above a large bulldozer would create a vibration level of 0.089 inch per second PPV at 25 feet. The vibration level at the nearest offsite homes (25 feet to west) and school structure (25 feet to east) would be below the 0.25 inch per second PPV threshold detailed above. Impacts would be less than significant.

Operations-Related Vibration Impacts

The proposed project would consist of the development of a residential community. The on-going operation of the proposed project would not include the operation of any known vibration sources other than typical onsite vehicle operations for a residential development. Therefore, a less than significant vibration impact is anticipated from operation of the proposed project.

Level of Significance

Less than significant impact.

7.4 Aircraft Noise

The proposed project may expose people residing in the project area to excessive noise levels from aircraft. The nearest airport is Chino Airport that is located as near as three miles west of the project site. The project site is located outside of the 60 dBA CNEL noise contours of this airport. Therefore, the proposed homes would not be exposed to excessive aircraft noise. Impacts would be less than significant.

Level of Significance

Less than significant impact.

8.0 REFERENCES

California Department of Transportation, *2016 Annual Average Daily Truck Traffic on the California State Highway System*, 2018.

California Department of Transportation (Caltrans), *Technical Noise Supplement to the Traffic Noise Analytics Protocol*, September 2013.

California Department of Transportation, *Transportation- and Construction Vibration Guidance Manual*, April 2020.

City of Eastvale, *Code of the City of Eastvale, California*, January 7, 2022.

City of Eastvale, *City of Eastvale General Plan*, adopted June 13, 2012.

County of Riverside, *County of Riverside General Plan*, December 2015.

Federal Transit Administration, *Transit Noise and Vibration Impact Assessment*, May 2006.

Urban Crossroads, *Project Scoping Agreement for Land Use Project – PLN22-20024*, June 27, 2022.

U.S. Department of Transportation, *FHWA Roadway Construction Noise Model User's Guide*, January, 2006.

U.S. Department of Transportation, *Highway Traffic Noise: Analysis and Abatement Guidance*, December, 2011.

Vista Environmental, *Air Quality, Energy, and Greenhouse Gas Emissions Impact Analysis Magnolia Ranch Residential Project*, July 26, 2022.

APPENDIX A

Field Noise Measurements Photo Index



Noise Measurement Site 1 - looking north



Noise Measurement Site 1 - looking northeast



Noise Measurement Site 1 - looking east



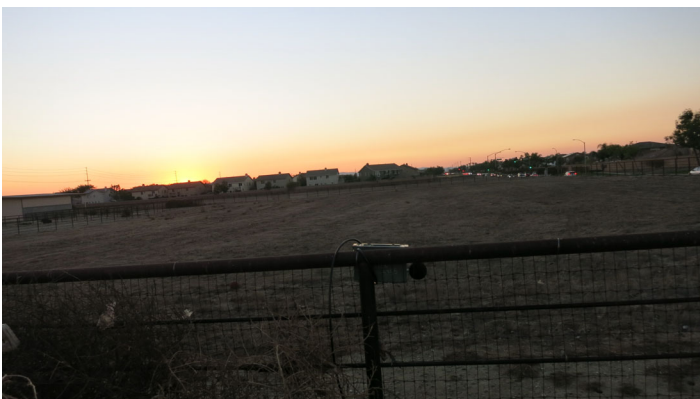
Noise Measurement Site 1 - looking southeast



Noise Measurement Site 1 - looking south



Noise Measurement Site 1 - looking southwest



Noise Measurement Site 1 - looking west



Noise Measurement Site 1 - looking northwest



Noise Measurement Site 2 - looking north



Noise Measurement Site 2 - looking northeast



Noise Measurement Site 2 - looking east



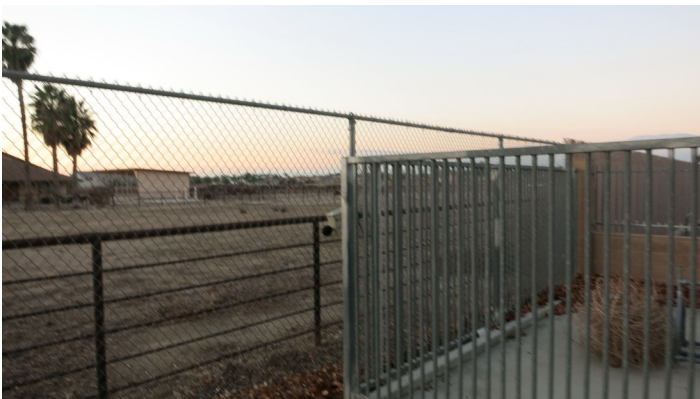
Noise Measurement Site 2 - looking south



Noise Measurement Site 2 - looking southwest



Noise Measurement Site 2 - looking west



Noise Measurement Site 2 - looking northwest



Noise Measurement Site 2 - looking north northeast



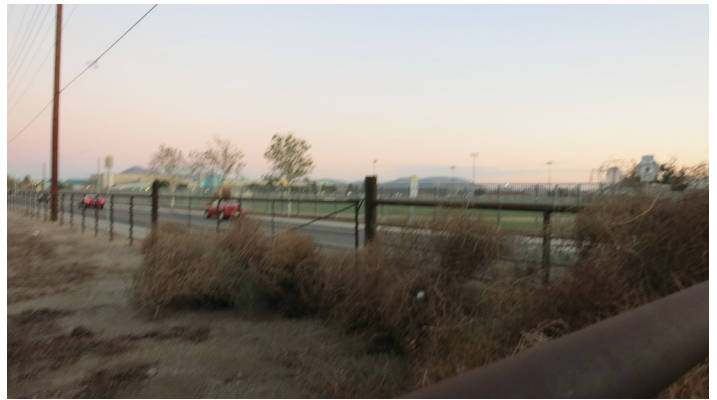
Noise Measurement Site 3 - looking north



Noise Measurement Site 3 - looking northeast



Noise Measurement Site 3 - looking east



Noise Measurement Site 3 - looking southeast



Noise Measurement Site 3 - looking south



Noise Measurement Site 3 - looking southwest



Noise Measurement Site 3 - looking west



Noise Measurement Site 3 - looking northwest

APPENDIX B

Field Noise Measurements Printouts

Site 1 - Near Northeast Corner of Project Site

December 9, 2021 4:09:56 PM Daytime = 57.4
Leq Daytime = 53.6
Record Num = 86402
Leq = 56.3
Min = 34.5
Max = 77.2

Site 2 - On East Side of Project Site

December 9, 2021 4:16:07 PM Daytime = 56.2
Leq Daytime = 49.1
Record Num = 86402
Leq = 54.7
Min = 35.1
Max = 81.3

Site 3 - Near Southwest Corner of Project Site

December 9, 2021 4:21:53 PM Daytime = 59.5
Leq Daytime = 51.7
Record Num = 86402
Leq = 57.9
Min = 33.0
Max = 81.2

Site 1 - Near Northeast Corner of Project Site

Table with 4 columns: SPL, Time, Leq (1 hour Avg.), Ldn CNEL. Rows represent hourly noise data from 6:00 to 5:59.

Site 2 - On East Side of Project Site

Table with 4 columns: SPL, Time, Leq (1 hour Avg.), Ldn CNEL. Rows represent hourly noise data from 6:00 to 5:59.

Site 3 - Near Southwest Corner of Project Site

Table with 4 columns: SPL, Time, Leq (1 hour Avg.), Ldn CNEL. Rows represent hourly noise data from 6:00 to 5:59.

Site 1 - Near Northeast Corner of Project Site

Table with columns: SPL, Time, Leq (1 hour Avg.), Ldn CNEL. Contains 971 rows of noise data for Site 1.

Site 2 - On East Side of Project Site

Table with columns: SPL, Time, Leq (1 hour Avg.), Ldn CNEL. Contains 971 rows of noise data for Site 2.

Site 3 - Near Southwest Corner of Project Site

Table with columns: SPL, Time, Leq (1 hour Avg.), Ldn CNEL. Contains 971 rows of noise data for Site 3.

Site 1 - Near Northeast Corner of Project Site

Table with columns: SPL, Time, Leq (1 hour Avg.), Ldn CNEL. Contains 100 rows of noise data for Site 1.

Site 2 - On East Side of Project Site

Table with columns: SPL, Time, Leq (1 hour Avg.), Ldn CNEL. Contains 100 rows of noise data for Site 2.

Site 3 - Near Southwest Corner of Project Site

Table with columns: SPL, Time, Leq (1 hour Avg.), Ldn CNEL. Contains 100 rows of noise data for Site 3.

Site 1 - Near Northeast Corner of Project Site

Table with columns: SPL, Time, Leq (1 hour Avg), Ldn CNEL. It lists noise impact data for Site 1, including SPL values ranging from 48.0 to 65.0 and time slots from 7:00 AM to 11:00 PM.

Site 2 - On East Side of Project Site

Table with columns: SPL, Time, Leq (1 hour Avg), Ldn CNEL. It lists noise impact data for Site 2, including SPL values ranging from 48.0 to 65.0 and time slots from 7:00 AM to 11:00 PM.

Site 3 - Near Southwest Corner of Project Site

Table with columns: SPL, Time, Leq (1 hour Avg), Ldn CNEL. It lists noise impact data for Site 3, including SPL values ranging from 48.0 to 65.0 and time slots from 7:00 AM to 11:00 PM.

Site 1 - Near Northeast Corner of Project Site

Table with 4 columns: SPL, Time, Leq (1 hour Avg), Ldn CNEL. Contains 975 rows of noise data for Site 1.

Site 2 - On East Side of Project Site

Table with 4 columns: SPL, Time, Leq (1 hour Avg), Ldn CNEL. Contains 975 rows of noise data for Site 2.

Site 3 - Near Southwest Corner of Project Site

Table with 4 columns: SPL, Time, Leq (1 hour Avg), Ldn CNEL. Contains 975 rows of noise data for Site 3.

Site 1 - Near Northeast Corner of Project Site

Table with 4 columns: SPL, Time, Leq (1 hour Avg.), Ldn CNEL. Contains 973 rows of noise data for Site 1.

Site 2 - On East Side of Project Site

Table with 4 columns: SPL, Time, Leq (1 hour Avg.), Ldn CNEL. Contains 973 rows of noise data for Site 2.

Site 3 - Near Southwest Corner of Project Site

Table with 4 columns: SPL, Time, Leq (1 hour Avg.), Ldn CNEL. Contains 973 rows of noise data for Site 3.

APPENDIX C

RCNM Model Construction Noise Calculation Printouts

Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 1/17/2022
 Case Description: Magnolia Ranch - Demolition

---- Receptor #1 ----

Description	Land Use	Baselines (dBA)		Night
		Daytime	Evening	
Nearest Homes to West	Residential	59.5	59.5	51.7

Description	Impact Device	Usage(%)	Equipment			
			Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No	20		89.6	340	5
Excavator	No	40		80.7	340	5
Excavator	No	40		80.7	340	5
Excavator	No	40		80.7	340	5
Dozer	No	40		81.7	340	5
Dozer	No	40		81.7	340	5

Equipment	Calculated (dBA)		Results			
	*Lmax	Leq	Day		Evening	
			Lmax	Leq	Lmax	Leq
Concrete Saw	67.9	60.9	N/A	N/A	N/A	N/A
Excavator	59.1	55.1	N/A	N/A	N/A	N/A
Excavator	59.1	55.1	N/A	N/A	N/A	N/A
Excavator	59.1	55.1	N/A	N/A	N/A	N/A
Dozer	60.0	56.0	N/A	N/A	N/A	N/A
Dozer	60.0	56.0	N/A	N/A	N/A	N/A
Total	68	65	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 1/17/2022
 Case Description: Magnolia Ranch - Demolition

---- Receptor #2 ----

Description	Land Use	Baselines (dBA)		Night
		Daytime	Evening	
Nearest School to East	Commercial	56.2	56.2	49.1

Description	Impact Device	Usage(%)	Equipment Spec	Actual	Receptor	Estimated
			Lmax (dBA)	Lmax (dBA)	Distance (feet)	Shielding (dBA)
Concrete Saw	No	20		89.6	340	0
Excavator	No	40		80.7	340	0
Excavator	No	40		80.7	340	0
Excavator	No	40		80.7	340	0
Dozer	No	40		81.7	340	0
Dozer	No	40		81.7	340	0

Equipment	Calculated (dBA)		Results			
	*Lmax	Leq	Noise Limits (dBA)		Evening	
			Day Lmax	Day Leq	Lmax	Leq
Concrete Saw	72.9	66	N/A	N/A	N/A	N/A
Excavator	64.1	60.1	N/A	N/A	N/A	N/A
Excavator	64.1	60.1	N/A	N/A	N/A	N/A
Excavator	64.1	60.1	N/A	N/A	N/A	N/A
Dozer	65.0	61.0	N/A	N/A	N/A	N/A
Dozer	65.0	61.0	N/A	N/A	N/A	N/A
Total	73	70	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 1/17/2022
 Case Description: Magnolia Ranch - Site Preparation

---- Receptor #1 ----

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
Nearest Homes to West	Residential	59.5	59.5	51.7

Description	Impact Device	Usage(%)	Equipment			
			Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Dozer	No	40		81.7	340	5
Dozer	No	40		81.7	340	5
Dozer	No	40		81.7	340	5
Tractor	No	40	84		340	5
Tractor	No	40	84		340	5
Tractor	No	40	84		340	5
Tractor	No	40	84		340	5

Equipment	Calculated (dBA)			Results			
	*Lmax	Leq	Lmax	Noise Limits (dBA)			Leq
				Day	Evening	Evening	
Dozer	60.0	56.0	N/A	Leq	Leq	Lmax	Leq
Dozer	60.0	56.0	N/A	N/A	N/A	N/A	N/A
Dozer	60.0	56.0	N/A	N/A	N/A	N/A	N/A
Tractor	62.3	58.4	N/A	N/A	N/A	N/A	N/A
Tractor	62.3	58.4	N/A	N/A	N/A	N/A	N/A
Tractor	62.3	58.4	N/A	N/A	N/A	N/A	N/A
Tractor	62.3	58.4	N/A	N/A	N/A	N/A	N/A
Total	62	66	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 1/17/2022
 Case Description: Magnolia Ranch - Site Preparation

---- Receptor #2 ----

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
Nearest School to East	Commercial	56.2	56.2	49.1

Description	Impact Device	Usage(%)	Equipment			
			Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Dozer	No	40		81.7	340	0
Dozer	No	40		81.7	340	0
Dozer	No	40		81.7	340	0
Tractor	No	40	84		340	0
Tractor	No	40	84		340	0
Tractor	No	40	84		340	0
Tractor	No	40	84		340	0

Equipment	Calculated (dBA)		Results			
	*Lmax	Leq	Day		Evening	
			Lmax	Leq	Lmax	Leq
Dozer	65.0	61.0	N/A	N/A	N/A	N/A
Dozer	65.0	61.0	N/A	N/A	N/A	N/A
Dozer	65.0	61.0	N/A	N/A	N/A	N/A
Tractor	67.3	63.4	N/A	N/A	N/A	N/A
Tractor	67.3	63.4	N/A	N/A	N/A	N/A
Tractor	67.3	63.4	N/A	N/A	N/A	N/A
Tractor	67.3	63.4	N/A	N/A	N/A	N/A
Total	67	71	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 7/22/2022
 Case Description: Magnolia Ranch - Grading

---- Receptor #1 ----

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
Nearest Homes to West	Residential	59.5	59.5	51.7

Description	Impact Device	Usage(%)	Equipment			
			Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator	No	40		80.7	340	5
Excavator	No	40		80.7	340	5
Grader	No	40	85		340	5
Dozer	No	40		81.7	340	5
Scraper	No	40		83.6	340	5
Scraper	No	40		83.6	340	5
Tractor	No	40	84		340	5
Tractor	No	40	84		340	5

Equipment	Calculated (dBA)		Results				
	*Lmax	Leq	Day		Noise Limits (dBA)		
			Lmax	Leq	Evening		
Excavator	59.1	55.1	N/A	N/A	N/A	N/A	N/A
Excavator	59.1	55.1	N/A	N/A	N/A	N/A	N/A
Grader	63.3	59.4	N/A	N/A	N/A	N/A	N/A
Dozer	60.0	56.0	N/A	N/A	N/A	N/A	N/A
Scraper	61.9	58.0	N/A	N/A	N/A	N/A	N/A
Scraper	61.9	58.0	N/A	N/A	N/A	N/A	N/A
Tractor	62.3	58.4	N/A	N/A	N/A	N/A	N/A
Tractor	62.3	58.4	N/A	N/A	N/A	N/A	N/A
Total	63	67	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 7/22/2022
 Case Description: Magnolia Ranch - Grading

---- Receptor #2 ----

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
Nearest School to East	Commercial	56.2	56.2	49.1

Description	Impact Device	Usage(%)	Equipment			
			Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator	No	40		80.7	340	0
Excavator	No	40		80.7	340	0
Grader	No	40	85		340	0
Dozer	No	40		81.7	340	0
Scraper	No	40		83.6	340	0
Scraper	No	40		83.6	340	0
Tractor	No	40	84		340	0
Tractor	No	40	84		340	0

Equipment	Calculated (dBA)		Results Noise Limits (dBA)			
	*Lmax	Leq	Day		Evening	
			Lmax	Leq	Lmax	Leq
Excavator	64.1	60.1	N/A	N/A	N/A	N/A
Excavator	64.1	60.1	N/A	N/A	N/A	N/A
Grader	68.3	64.4	N/A	N/A	N/A	N/A
Dozer	65.0	61.0	N/A	N/A	N/A	N/A
Scraper	66.9	63.0	N/A	N/A	N/A	N/A
Scraper	66.9	63.0	N/A	N/A	N/A	N/A
Tractor	67.3	63.4	N/A	N/A	N/A	N/A
Tractor	67.3	63.4	N/A	N/A	N/A	N/A
Total	68	72	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 1/17/2022
 Case Description: Magnolia Ranch - Building Construction

---- Receptor #1 ----

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
Nearest Homes to West	Residential	59.5	59.5	51.7

Description	Impact Device	Usage(%)	Equipment			
			Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Crane	No	16		80.6	340	5
Gradall	No	40		83.4	340	5
Gradall	No	40		83.4	340	5
Gradall	No	40		83.4	340	5
Generator	No	50		80.6	340	5
Tractor	No	40	84		340	5
Front End Loader	No	40		79.1	340	5
Backhoe	No	40		77.6	340	5
Welder / Torch	No	40		74	340	5

Equipment	Calculated (dBA)		Results			
	*Lmax	Leq	Day		Evening	
			Lmax	Leq	Lmax	Leq
Crane	58.9	50.9	N/A	N/A	N/A	N/A
Gradall	61.7	57.8	N/A	N/A	N/A	N/A
Gradall	61.7	57.8	N/A	N/A	N/A	N/A
Gradall	61.7	57.8	N/A	N/A	N/A	N/A
Generator	59.0	56.0	N/A	N/A	N/A	N/A
Tractor	62.3	58.4	N/A	N/A	N/A	N/A
Front End Loader	57.5	53.5	N/A	N/A	N/A	N/A
Backhoe	55.9	51.9	N/A	N/A	N/A	N/A
Welder / Torch	52.3	48.4	N/A	N/A	N/A	N/A
Total	62	65	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 1/17/2022
 Case Description: Magnolia Ranch - Building Construction

---- Receptor #2 ----

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
Nearest School to East	Commercial	56.2	56.2	49.1

Description	Impact Device	Usage(%)	Equipment			
			Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Crane	No	16		80.6	340	0
Gradall	No	40		83.4	340	0
Gradall	No	40		83.4	340	0
Gradall	No	40		83.4	340	0
Generator	No	50		80.6	340	0
Tractor	No	40	84		340	0
Front End Loader	No	40		79.1	340	0
Backhoe	No	40		77.6	340	0
Welder / Torch	No	40		74	340	0

Equipment	Calculated (dBA)		Results			
	*Lmax	Leq	Day		Evening	
			Lmax	Leq	Lmax	Leq
Crane	63.9	55.9	N/A	N/A	N/A	N/A
Gradall	66.7	62.8	N/A	N/A	N/A	N/A
Gradall	66.7	62.8	N/A	N/A	N/A	N/A
Gradall	66.7	62.8	N/A	N/A	N/A	N/A
Generator	64.0	61.0	N/A	N/A	N/A	N/A
Tractor	67.3	63.4	N/A	N/A	N/A	N/A
Front End Loader	62.5	58.5	N/A	N/A	N/A	N/A
Backhoe	60.9	56.9	N/A	N/A	N/A	N/A
Welder / Torch	57.3	53.4	N/A	N/A	N/A	N/A
Total	67	70	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 1/17/2022
 Case Description: Magnolia Ranch - Paving

---- Receptor #1 ----

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
Nearest Homes to West	Residential	59.5	59.5	51.7

Description	Impact Device	Usage(%)	Equipment			
			Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Paver	No	50		77.2	340	5
Paver	No	50		77.2	340	5
Paver	No	50		77.2	340	5
Paver	No	50		77.2	340	5
Roller	No	20		80	340	5
Roller	No	20		80	340	5

Equipment	Calculated (dBA)		Results			
	*Lmax	Leq	Day		Noise Limits (dBA)	
			Lmax	Leq	Lmax	Leq
Paver	55.6	52.6	N/A	N/A	N/A	N/A
Paver	55.6	52.6	N/A	N/A	N/A	N/A
Paver	55.6	52.6	N/A	N/A	N/A	N/A
Paver	55.6	52.6	N/A	N/A	N/A	N/A
Roller	58.3	51.4	N/A	N/A	N/A	N/A
Roller	58.3	51.4	N/A	N/A	N/A	N/A
Total	58	60	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 1/17/2022
 Case Description: Magnolia Ranch - Paving

---- Receptor #2 ----

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
Nearest School to East	Commercial	56.2	56.2	49.1

Description	Impact Device	Usage(%)	Equipment Spec	Actual	Receptor	Estimated
			Lmax (dBA)	Lmax (dBA)	Distance (feet)	Shielding (dBA)
Paver	No	50		77.2	340	0
Paver	No	50		77.2	340	0
Paver	No	50		77.2	340	0
Paver	No	50		77.2	340	0
Roller	No	20		80	340	0
Roller	No	20		80	340	0

Equipment	Calculated (dBA)		Results Noise Limits (dBA)			
	*Lmax	Leq	Day		Evening	
			Lmax	Leq	Lmax	Leq
Paver	60.6	57.6	N/A	N/A	N/A	N/A
Paver	60.6	57.6	N/A	N/A	N/A	N/A
Paver	60.6	57.6	N/A	N/A	N/A	N/A
Paver	60.6	57.6	N/A	N/A	N/A	N/A
Roller	63.3	56.4	N/A	N/A	N/A	N/A
Roller	63.3	56.4	N/A	N/A	N/A	N/A
Total	63	65	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 1/17/2022
 Case Description: Magnolia Ranch - Painting

---- Receptor #1 ----

Description	Land Use	Baselines (dBA)						
		Daytime	Evening	Night				
Nearest Homes to West	Residential	59.5	59.5	51.7				
					Equipment			
Description		Impact			Spec	Actual	Receptor	Estimated
		Device	Usage(%)	(dBA)	(dBA)	Distance	Shielding	
Compressor (air)		No	40		77.7	340	5	
					Results			
		Calculated (dBA)		Noise Limits (dBA)				
Equipment		*Lmax	Leq	Day	Evening			
		(dBA)	(dBA)	Lmax	Leq	Lmax	Leq	
Compressor (air)		56.0	52.0	N/A	N/A	N/A	N/A	
	Total	56	52	N/A	N/A	N/A	N/A	

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

Description	Land Use	Baselines (dBA)						
		Daytime	Evening	Night				
Nearest School to East	Commercial	56.2	56.2	49.1				
					Equipment			
Description		Impact			Spec	Actual	Receptor	Estimated
		Device	Usage(%)	(dBA)	(dBA)	Distance	Shielding	
Compressor (air)		No	40		77.7	340	0	
					Results			
		Calculated (dBA)		Noise Limits (dBA)				
Equipment		*Lmax	Leq	Day	Evening			
		(dBA)	(dBA)	Lmax	Leq	Lmax	Leq	
Compressor (air)		61.0	57.0	N/A	N/A	N/A	N/A	
	Total	61	57	N/A	N/A	N/A	N/A	

*Calculated Lmax is the Loudest value.

APPENDIX D

FHWA Model Offsite Traffic Noise Calculation Printouts

FHWA-RD-77-108 HIGHWAY TRAFFIC NOISE PREDICTION MODEL

Scenario: EXISTING CONDITIONS

Project: Magnolia Ranch

Site Conditions: Soft

Vehicle Type	Vehicle Mix 1 (Local)			Vehicle Mix 2 (Arterial)			Vehicle Mix 3 (Hwy 111)		
	Day	Evening	Night	Day	Evening	Night	Day	Evening	Night
Automobiles	73.60%	13.60%	10.22%	69.50%	12.90%	9.60%	73.40%	9.70%	16.90%
Medium Trucks	0.90%	0.90%	0.04%	1.44%	0.06%	1.50%	80.30%	5.50%	14.20%
Heavy Trucks	0.35%	0.04%	0.35%	2.40%	0.10%	2.50%	71.70%	6.50%	21.80%
			0.74%			5.00%			2.11%

Road Name: Summer Avenue		Segment: North of Schleisman Road		Roadway Classification: Major							
Average Daily Traffic: 10950 Vehicles		Vehicle Speed: 45 MPH		Vehicle Mix: 2							
NOISE PARAMETERS AT 85 FEET FROM CENTERLINE (Equiv. Lane Dist: 81.54 ft)											
Noise Adjustments											
Vehicle Type	REML Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL	Centerline Distance to Noise Contour (in feet)	
Automobiles	69.34	-1.81	-3.29	-1.20	63.05	60.68	59.38	53.33	61.76	62.39	70 dBA: 27
Medium Trucks	77.62	-16.67	-3.29	-1.20	56.46	37.25	29.47	38.68	44.83	44.87	65 dBA: 58
Heavy Trucks	82.14	-14.45	-3.29	-1.20	63.20	46.21	38.43	47.64	53.79	53.82	60 dBA: 124
Total:				66.58	60.85	59.42	54.48	62.48	63.02	55 dBA: 268	291

Road Name: Summer Avenue		Segment: South of Schleisman Road		Roadway Classification: Major							
Average Daily Traffic: 9600 Vehicles		Vehicle Speed: 45 MPH		Vehicle Mix: 2							
NOISE PARAMETERS AT 45 FEET FROM CENTERLINE (Equiv. Lane Dist: 38.07 ft)											
Noise Adjustments											
Vehicle Type	REML Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL	Centerline Distance to Noise Contour (in feet)	
Automobiles	69.34	-2.38	1.67	-1.20	67.44	65.07	63.78	57.72	66.15	66.78	70 dBA: 28
Medium Trucks	77.62	-17.24	1.67	-1.20	60.85	41.64	33.86	43.07	49.22	49.26	65 dBA: 60
Heavy Trucks	82.14	-15.03	1.67	-1.20	67.59	50.60	42.82	52.03	58.18	58.21	60 dBA: 129
Total:				70.97	65.24	63.81	58.87	66.87	67.42	55 dBA: 278	303

Road Name: Summer Avenue		Segment: South of Orange Street		Roadway Classification: Major							
Average Daily Traffic: 8400 Vehicles		Vehicle Speed: 45 MPH		Vehicle Mix: 2							
NOISE PARAMETERS AT 60 FEET FROM CENTERLINE (Equiv. Lane Dist: 54.99 ft)											
Noise Adjustments											
Vehicle Type	REML Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL	Centerline Distance to Noise Contour (in feet)	
Automobiles	69.34	-2.96	-0.72	-1.20	64.46	62.09	60.80	54.74	63.18	63.81	70 dBA: 24
Medium Trucks	77.62	-17.82	-0.72	-1.20	57.88	38.67	30.89	40.09	46.25	46.28	65 dBA: 51
Heavy Trucks	82.14	-15.61	-0.72	-1.20	64.61	47.62	39.84	49.05	55.20	55.24	60 dBA: 109
Total:				67.99	62.26	60.84	55.90	63.89	64.44	55 dBA: 235	256

FHWA-RD-77-108 HIGHWAY TRAFFIC NOISE PREDICTION MODEL

Scenario: EXISTING CONDITIONS

Project: Magnolia Ranch
Site Conditions: Soft

Road Name: Scholar Way Segment: North of Schleisman Road

Average Daily Traffic: 7450 Vehicles Vehicle Speed: 35 MPH Vehicle Mix: 1 Roadway Classification: Secondary

Vehicle Type	NOISE PARAMETERS AT 70 FEET FROM CENTERLINE				Unmitigated Noise Levels				Centerline Distance to Noise Contour (in feet)						
	REMEL Traffic Adj.	Dist Adj.	Finite Adj.		Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL					
Automobiles	65.11	-2.14	-2.07	-1.20	59.70	57.58	56.26	50.25	58.67	59.30					
Medium Trucks	74.83	-19.38	-2.07	-1.20	52.18	30.93	36.95	18.66	31.80	34.55					
Heavy Trucks	80.05	-23.33	-2.07	-1.20	53.44	28.09	24.69	29.34	35.54	35.63					
Total:										61.20	57.59	56.32	50.29	58.70	59.33

Road Name: Scholar Way Segment: South of Schleisman Road

Average Daily Traffic: 6950 Vehicles Vehicle Speed: 35 MPH Vehicle Mix: 1 Roadway Classification: Secondary

Vehicle Type	NOISE PARAMETERS AT 60 FEET FROM CENTERLINE				Unmitigated Noise Levels				Centerline Distance to Noise Contour (in feet)						
	REMEL Traffic Adj.	Dist Adj.	Finite Adj.		Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL					
Automobiles	65.11	-2.44	-0.98	-1.20	60.49	58.36	57.05	51.04	59.46	60.08					
Medium Trucks	74.83	-19.68	-0.98	-1.20	52.97	31.72	37.74	19.44	32.59	35.34					
Heavy Trucks	80.05	-23.63	-0.98	-1.20	54.23	28.88	25.48	30.13	36.33	36.42					
Total:										61.99	58.38	57.10	51.08	59.49	60.12

Road Name: Scholar Way Segment: South of Orange Street

Average Daily Traffic: 7200 Vehicles Vehicle Speed: 35 MPH Vehicle Mix: 1 Roadway Classification: Secondary

Vehicle Type	NOISE PARAMETERS AT 60 FEET FROM CENTERLINE				Unmitigated Noise Levels				Centerline Distance to Noise Contour (in feet)						
	REMEL Traffic Adj.	Dist Adj.	Finite Adj.		Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL					
Automobiles	65.11	-2.29	-0.98	-1.20	60.64	58.52	57.20	51.19	59.61	60.24					
Medium Trucks	74.83	-19.52	-0.98	-1.20	53.12	31.87	37.89	19.60	32.74	35.49					
Heavy Trucks	80.05	-23.48	-0.98	-1.20	54.38	29.03	25.63	30.28	36.48	36.57					
Total:										62.14	58.53	57.26	51.23	59.64	60.27

Road Name: Scholar Way Segment: South of Baltimore Street

Average Daily Traffic: 7850 Vehicles Vehicle Speed: 35 MPH Vehicle Mix: 1 Roadway Classification: Secondary

Vehicle Type	NOISE PARAMETERS AT 75 FEET FROM CENTERLINE				Unmitigated Noise Levels				Centerline Distance to Noise Contour (in feet)						
	REMEL Traffic Adj.	Dist Adj.	Finite Adj.		Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL					
Automobiles	65.11	-1.91	-2.55	-1.20	59.45	57.32	56.01	50.00	58.42	59.05					
Medium Trucks	74.83	-19.15	-2.55	-1.20	51.93	30.68	36.70	18.41	31.55	34.30					
Heavy Trucks	80.05	-23.11	-2.55	-1.20	53.19	27.84	24.44	29.09	35.29	35.38					
Total:										60.95	57.34	56.07	50.04	58.45	59.08

FHWA-RD-77-108 HIGHWAY TRAFFIC NOISE PREDICTION MODEL

Scenario: EXISTING CONDITIONS

Project: Magnolia Ranch
Site Conditions: Soft

Road Name: Hammer Avenue **Segment:** North of Schleisman Road **Roadway Classification:** Urban Arterial
Average Daily Traffic: 24600 Vehicles Vehicle Speed: 45 MPH Vehicle Mix: 2

Vehicle Type	NOISE PARAMETERS AT 90 FEET FROM CENTERLINE (Equiv. Lane Dist: 81.11 ft)					Centerline Distance to Noise Contour (in feet)												
	REML Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL									
Automobiles	69.34	1.71	-3.26	-1.20	66.60	64.23	62.93	56.88	65.31	65.94	70 dBA: 49	53						
Medium Trucks	77.62	-13.16	-3.26	-1.20	60.01	40.80	33.02	42.23	48.38	48.42	65 dBA: 105	115						
Heavy Trucks	82.14	-10.94	-3.26	-1.20	66.75	49.76	41.98	51.19	57.34	57.37	60 dBA: 227	247						
Total:											70.13	64.40	62.97	58.03	66.03	66.57	55 dBA: 489	532

Road Name: Hammer Avenue **Segment:** South of Schleisman Road

Average Daily Traffic: 24650 Vehicles Vehicle Speed: 45 MPH Vehicle Mix: 2 **Roadway Classification:** Urban Arterial

Vehicle Type	NOISE PARAMETERS AT 100 FEET FROM CENTERLINE (Equiv. Lane Dist: 92.08 ft)					Centerline Distance to Noise Contour (in feet)												
	REML Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL									
Automobiles	69.34	1.72	-4.08	-1.20	65.78	63.41	62.12	56.06	64.49	65.12	70 dBA: 48	52						
Medium Trucks	77.62	-13.15	-4.08	-1.20	59.19	39.98	32.20	41.41	47.57	47.60	65 dBA: 103	112						
Heavy Trucks	82.14	-10.93	-4.08	-1.20	65.93	48.94	41.16	50.37	56.52	56.56	60 dBA: 223	242						
Total:											69.31	63.58	62.16	57.21	65.21	65.76	55 dBA: 479	521

Road Name: Schleisman Road

Segment: West of Sumner Avenue

Average Daily Traffic: 18400 Vehicles Vehicle Speed: 45 MPH Vehicle Mix: 2 **Roadway Classification:** Major

Vehicle Type	NOISE PARAMETERS AT 70 FEET FROM CENTERLINE (Equiv. Lane Dist: 65.76 ft)					Centerline Distance to Noise Contour (in feet)												
	REML Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL									
Automobiles	69.34	0.45	-1.89	-1.20	66.71	64.33	63.04	56.99	65.42	66.05	70 dBA: 39	42						
Medium Trucks	77.62	-14.42	-1.89	-1.20	60.12	40.91	33.13	42.33	48.49	48.52	65 dBA: 83	91						
Heavy Trucks	82.14	-12.20	-1.89	-1.20	66.85	49.86	42.08	51.29	57.45	57.48	60 dBA: 180	195						
Total:											70.24	64.50	63.08	58.14	66.14	66.68	55 dBA: 387	421

Road Name: Schleisman Road

Segment: East of Sumner Avenue

Average Daily Traffic: 9600 Vehicles Vehicle Speed: 45 MPH Vehicle Mix: 2 **Roadway Classification:** Urban Arterial

Vehicle Type	NOISE PARAMETERS AT 80 FEET FROM CENTERLINE (Equiv. Lane Dist: 69.85 ft)					Centerline Distance to Noise Contour (in feet)												
	REML Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL									
Automobiles	69.34	-2.38	-2.28	-1.20	63.49	61.11	59.82	53.77	62.20	62.83	70 dBA: 27	29						
Medium Trucks	77.62	-17.24	-2.28	-1.20	56.90	37.69	29.91	39.12	45.27	45.30	65 dBA: 58	63						
Heavy Trucks	82.14	-15.03	-2.28	-1.20	63.64	46.65	38.86	48.07	54.23	54.26	60 dBA: 125	136						
Total:											67.02	61.29	59.86	54.92	62.92	63.46	55 dBA: 270	293

FHWA-RD-77-108 HIGHWAY TRAFFIC NOISE PREDICTION MODEL

Scenario: EXISTING CONDITIONS

Project: Magnolia Ranch
Site Conditions: Soft

Road Name: Schleisman Road **Segment:** West of Scholar Way **Roadway Classification:** Urban Arterial
Average Daily Traffic: 9400 Vehicles Vehicle Speed: 45 MPH Vehicle Mix: 2

Vehicle Type	NOISE PARAMETERS AT 80 FEET FROM CENTERLINE (Equiv. Lane Dist: 69.85 ft)					Centerline Distance to Noise Contour (in feet)													
	REML Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL										
Automobiles	69.34	-2.47	-2.28	-1.20	63.39	61.02	59.73	53.68	62.11	62.74	70 dBA:	27	29						
Medium Trucks	77.62	-17.34	-2.28	-1.20	56.81	37.60	29.82	39.02	45.18	45.21	65 dBA:	57	62						
Heavy Trucks	82.14	-15.12	-2.28	-1.20	63.54	46.55	38.77	47.98	54.14	54.17	60 dBA:	123	134						
Total:											66.92	61.19	59.77	54.83	62.82	63.37	55 dBA:	266	289

Road Name: Schleisman Road **Segment:** East of Scholar Way **Roadway Classification:** Urban Arterial
Average Daily Traffic: 8550 Vehicles Vehicle Speed: 45 MPH Vehicle Mix: 2

Vehicle Type	NOISE PARAMETERS AT 80 FEET FROM CENTERLINE (Equiv. Lane Dist: 69.85 ft)					Centerline Distance to Noise Contour (in feet)													
	REML Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL										
Automobiles	69.34	-2.88	-2.28	-1.20	62.98	60.61	59.32	53.26	61.70	62.33	70 dBA:	25	27						
Medium Trucks	77.62	-17.75	-2.28	-1.20	56.39	37.19	29.40	38.61	44.77	44.80	65 dBA:	54	58						
Heavy Trucks	82.14	-15.53	-2.28	-1.20	63.13	46.14	38.36	47.57	53.72	53.76	60 dBA:	116	126						
Total:											66.51	60.78	59.36	54.42	62.41	62.96	55 dBA:	250	271

Road Name: Orange Street **Segment:** East of Summer Avenue **Roadway Classification:** Collector
Average Daily Traffic: 1100 Vehicles Vehicle Speed: 30 MPH Vehicle Mix: 1

Vehicle Type	NOISE PARAMETERS AT 40 FEET FROM CENTERLINE (Equiv. Lane Dist: 38.97 ft)					Centerline Distance to Noise Contour (in feet)													
	REML Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL										
Automobiles	62.51	-9.78	1.52	-1.20	53.06	50.93	49.62	43.61	52.03	52.65	70 dBA:	3	3						
Medium Trucks	73.11	-27.01	1.52	-1.20	46.42	25.17	31.19	12.90	26.04	28.79	65 dBA:	6	6						
Heavy Trucks	80.26	-30.97	1.52	-1.20	49.61	24.26	20.86	25.51	31.71	31.80	60 dBA:	12	13						
Total:											55.28	50.95	49.69	43.68	52.08	52.71	55 dBA:	26	28

Road Name: Orange Street **Segment:** West of Scholar Way **Roadway Classification:** Collector
Average Daily Traffic: 2450 Vehicles Vehicle Speed: 30 MPH Vehicle Mix: 1

Vehicle Type	NOISE PARAMETERS AT 100 FEET FROM CENTERLINE (Equiv. Lane Dist: 99.59 ft)					Centerline Distance to Noise Contour (in feet)													
	REML Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL										
Automobiles	62.51	-6.30	-4.59	-1.20	50.42	48.30	46.99	40.97	49.39	50.02	70 dBA:	4	5						
Medium Trucks	73.11	-23.54	-4.59	-1.20	43.79	22.54	28.56	10.26	23.41	26.16	65 dBA:	9	10						
Heavy Trucks	80.26	-27.49	-4.59	-1.20	46.98	21.62	18.23	22.87	29.07	29.17	60 dBA:	20	22						
Total:											52.65	48.32	47.05	41.04	49.44	50.07	55 dBA:	43	47

FHWA-RD-77-108 HIGHWAY TRAFFIC NOISE PREDICTION MODEL

Scenario: EXISTING WITH PROJECT CONDITIONS

Project: Magnolia Ranch

Site Conditions: Soft

Vehicle Type	Vehicle Mix 1 (Local)			Vehicle Mix 2 (Arterial)			Vehicle Mix 3 (Hwy 111)		
	Day	Evening	Night	Day	Evening	Night	Day	Evening	Night
Automobiles	73.60%	13.60%	10.22%	69.50%	12.90%	9.60%	73.40%	9.70%	16.90%
Medium Trucks	0.90%	0.90%	0.04%	1.44%	0.06%	1.50%	80.30%	5.50%	14.20%
Heavy Trucks	0.35%	0.04%	0.35%	2.40%	0.10%	2.50%	71.70%	6.50%	21.80%
			0.74%			5.00%			2.11%

Road Name: Summer Avenue		Segment: North of Schleisman Road		Roadway Classification: Major							
Average Daily Traffic: 11050 Vehicles		Vehicle Speed: 45 MPH		Vehicle Mix: 2							
NOISE PARAMETERS AT 85 FEET FROM CENTERLINE (Equiv. Lane Dist: 81.54 ft)											
Noise Adjustments											
Vehicle Type	REML Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL	Centerline Distance to Noise Contour (in feet)	
Automobiles	69.34	-1.77	-3.29	-1.20	63.09	60.72	59.42	53.37	61.80	62.43	70 dBA: 27
Medium Trucks	77.62	-16.63	-3.29	-1.20	56.50	37.29	29.51	38.72	44.87	44.91	65 dBA: 63
Heavy Trucks	82.14	-14.41	-3.29	-1.20	63.24	46.25	38.47	47.67	53.83	53.86	60 dBA: 136
Total:				66.62	60.89	59.46	54.52	62.52	63.06	55 dBA: 270	293

Road Name: Summer Avenue		Segment: South of Schleisman Road		Roadway Classification: Major							
Average Daily Traffic: 9750 Vehicles		Vehicle Speed: 45 MPH		Vehicle Mix: 2							
NOISE PARAMETERS AT 45 FEET FROM CENTERLINE (Equiv. Lane Dist: 38.07 ft)											
Noise Adjustments											
Vehicle Type	REML Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL	Centerline Distance to Noise Contour (in feet)	
Automobiles	69.34	-2.31	1.67	-1.20	67.51	65.14	63.84	57.79	66.22	66.85	70 dBA: 28
Medium Trucks	77.62	-17.18	1.67	-1.20	60.92	41.71	33.93	43.14	49.29	49.33	65 dBA: 61
Heavy Trucks	82.14	-14.96	1.67	-1.20	67.66	50.67	42.89	52.09	58.25	58.28	60 dBA: 131
Total:				71.04	65.31	63.88	58.94	66.94	67.48	55 dBA: 281	306

Road Name: Summer Avenue		Segment: South of Orange Street		Roadway Classification: Major							
Average Daily Traffic: 8400 Vehicles		Vehicle Speed: 45 MPH		Vehicle Mix: 2							
NOISE PARAMETERS AT 60 FEET FROM CENTERLINE (Equiv. Lane Dist: 54.99 ft)											
Noise Adjustments											
Vehicle Type	REML Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL	Centerline Distance to Noise Contour (in feet)	
Automobiles	69.34	-2.96	-0.72	-1.20	64.46	62.09	60.80	54.74	63.18	63.81	70 dBA: 24
Medium Trucks	77.62	-17.82	-0.72	-1.20	57.88	38.67	30.89	40.09	46.25	46.28	65 dBA: 51
Heavy Trucks	82.14	-15.61	-0.72	-1.20	64.61	47.62	39.84	49.05	55.20	55.24	60 dBA: 109
Total:				67.99	62.26	60.84	55.90	63.89	64.44	55 dBA: 235	256

FHWA-RD-77-108 HIGHWAY TRAFFIC NOISE PREDICTION MODEL

Scenario: EXISTING WITH PROJECT CONDITIONS

Project: Magnolia Ranch
Site Conditions: Soft

Road Name: Scholar Way		Segment: North of Schleisman Road		Roadway Classification: Secondary															
Average Daily Traffic: 7550 Vehicles		Vehicle Speed: 35 MPH		Vehicle Mix: 1															
NOISE PARAMETERS AT 70 FEET FROM CENTERLINE (Equiv. Lane Dist: 67.65 ft)																			
Noise Adjustments			Unmitigated Noise Levels																
Vehicle Type	REME L Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL	Centerline Distance to Noise Contour (in feet)	Ldn	CNEL							
Automobiles	65.11	-2.08	-2.07	-1.20	59.76	57.63	56.32	50.31	58.73	59.36	70 dBA:	12	14						
Medium Trucks	74.83	-19.32	-2.07	-1.20	52.24	30.99	37.01	18.72	31.86	34.61	65 dBA:	27	30						
Heavy Trucks	80.05	-23.27	-2.07	-1.20	53.50	28.15	24.75	29.40	35.60	35.69	60 dBA:	58	64						
Total:											61.26	57.65	56.37	50.35	58.76	59.39	55 dBA:	125	137

Road Name: Scholar Way		Segment: South of Schleisman Road		Roadway Classification: Secondary															
Average Daily Traffic: 7100 Vehicles		Vehicle Speed: 35 MPH		Vehicle Mix: 1															
NOISE PARAMETERS AT 60 FEET FROM CENTERLINE (Equiv. Lane Dist: 57.24 ft)																			
Noise Adjustments			Unmitigated Noise Levels																
Vehicle Type	REME L Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL	Centerline Distance to Noise Contour (in feet)	Ldn	CNEL							
Automobiles	65.11	-2.35	-0.98	-1.20	60.58	58.46	57.14	51.13	59.55	60.18	70 dBA:	12	13						
Medium Trucks	74.83	-19.59	-0.98	-1.20	53.06	31.81	37.83	19.54	32.68	35.43	65 dBA:	26	29						
Heavy Trucks	80.05	-23.54	-0.98	-1.20	54.32	28.97	25.57	30.22	36.42	36.51	60 dBA:	56	62						
Total:											62.08	58.47	57.20	51.17	59.58	60.21	55 dBA:	121	134

Road Name: Scholar Way		Segment: South of Orange Street		Roadway Classification: Secondary															
Average Daily Traffic: 7200 Vehicles		Vehicle Speed: 35 MPH		Vehicle Mix: 1															
NOISE PARAMETERS AT 60 FEET FROM CENTERLINE (Equiv. Lane Dist: 57.24 ft)																			
Noise Adjustments			Unmitigated Noise Levels																
Vehicle Type	REME L Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL	Centerline Distance to Noise Contour (in feet)	Ldn	CNEL							
Automobiles	65.11	-2.29	-0.98	-1.20	60.64	58.52	57.20	51.19	59.61	60.24	70 dBA:	12	13						
Medium Trucks	74.83	-19.52	-0.98	-1.20	53.12	31.87	37.89	19.60	32.74	35.49	65 dBA:	26	29						
Heavy Trucks	80.05	-23.48	-0.98	-1.20	54.38	29.03	25.63	30.28	36.48	36.57	60 dBA:	57	63						
Total:											62.14	58.53	57.26	51.23	59.64	60.27	55 dBA:	122	135

Road Name: Scholar Way		Segment: South of Baltimore Street		Roadway Classification: Secondary															
Average Daily Traffic: 7850 Vehicles		Vehicle Speed: 35 MPH		Vehicle Mix: 1															
NOISE PARAMETERS AT 75 FEET FROM CENTERLINE (Equiv. Lane Dist: 72.81 ft)																			
Noise Adjustments			Unmitigated Noise Levels																
Vehicle Type	REME L Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL	Centerline Distance to Noise Contour (in feet)	Ldn	CNEL							
Automobiles	65.11	-1.91	-2.55	-1.20	59.45	57.32	56.01	50.00	58.42	59.05	70 dBA:	13	14						
Medium Trucks	74.83	-19.15	-2.55	-1.20	51.93	30.68	36.70	18.41	31.55	34.30	65 dBA:	27	30						
Heavy Trucks	80.05	-23.11	-2.55	-1.20	53.19	27.84	24.44	29.09	35.29	35.38	60 dBA:	59	65						
Total:											60.95	57.34	56.07	50.04	58.45	59.08	55 dBA:	127	140

FHWA-RD-77-108 HIGHWAY TRAFFIC NOISE PREDICTION MODEL

Scenario: EXISTING WITH PROJECT CONDITIONS

Project: Magnolia Ranch
Site Conditions: Soft

Road Name: Hamner Avenue		Segment: North of Schleisman Road		Roadway Classification: Urban Arterial									
Average Daily Traffic: 24650 Vehicles		Vehicle Speed: 45 MPH		Vehicle Mix: 2									
NOISE PARAMETERS AT 90 FEET FROM CENTERLINE (Equiv. Lane Dist: 81.11 ft)													
Noise Adjustments			Unmitigated Noise Levels										
Vehicle Type	REML Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve. Night	Ldn	CNEL	Centerline Distance to Noise Contour (in feet)				
Automobiles	69.34	1.72	-3.26	-1.20	66.61	64.24	62.94	56.89	65.32	65.95	70 dBA:	49	53
Medium Trucks	77.62	-13.15	-3.26	-1.20	60.02	40.81	33.03	42.24	48.39	48.43	65 dBA:	106	115
Heavy Trucks	82.14	-10.93	-3.26	-1.20	66.76	49.77	41.99	51.19	57.35	57.38	60 dBA:	227	247
Total:				70.14	64.41	62.98	58.04	66.04	66.58		55 dBA:	490	533

Road Name: Hamner Avenue		Segment: South of Schleisman Road		Roadway Classification: Urban Arterial									
Average Daily Traffic: 24700 Vehicles		Vehicle Speed: 45 MPH		Vehicle Mix: 2									
NOISE PARAMETERS AT 100 FEET FROM CENTERLINE (Equiv. Lane Dist: 92.08 ft)													
Noise Adjustments			Unmitigated Noise Levels										
Vehicle Type	REML Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve. Night	Ldn	CNEL	Centerline Distance to Noise Contour (in feet)				
Automobiles	69.34	1.73	-4.08	-1.20	65.79	63.42	62.13	56.07	64.50	65.13	70 dBA:	48	52
Medium Trucks	77.62	-13.14	-4.08	-1.20	59.20	39.99	32.21	41.42	47.57	47.61	65 dBA:	103	112
Heavy Trucks	82.14	-10.92	-4.08	-1.20	65.94	48.95	41.17	50.38	56.53	56.56	60 dBA:	223	242
Total:				69.32	63.59	62.16	57.22	65.22	65.77		55 dBA:	480	522

Road Name: Schleisman Road		Segment: West of Sumner Avenue		Roadway Classification: Major									
Average Daily Traffic: 18500 Vehicles		Vehicle Speed: 45 MPH		Vehicle Mix: 2									
NOISE PARAMETERS AT 70 FEET FROM CENTERLINE (Equiv. Lane Dist: 65.76 ft)													
Noise Adjustments			Unmitigated Noise Levels										
Vehicle Type	REML Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve. Night	Ldn	CNEL	Centerline Distance to Noise Contour (in feet)				
Automobiles	69.34	0.47	-1.89	-1.20	66.73	64.36	63.06	57.01	65.44	66.07	70 dBA:	39	42
Medium Trucks	77.62	-14.39	-1.89	-1.20	60.14	40.93	33.15	42.36	48.51	48.55	65 dBA:	84	91
Heavy Trucks	82.14	-12.18	-1.89	-1.20	66.88	49.89	42.11	51.31	57.47	57.50	60 dBA:	180	196
Total:				70.26	64.53	63.10	58.16	66.16	66.70		55 dBA:	388	422

Road Name: Schleisman Road		Segment: East of Sumner Avenue		Roadway Classification: Urban Arterial									
Average Daily Traffic: 9600 Vehicles		Vehicle Speed: 45 MPH		Vehicle Mix: 2									
NOISE PARAMETERS AT 80 FEET FROM CENTERLINE (Equiv. Lane Dist: 69.85 ft)													
Noise Adjustments			Unmitigated Noise Levels										
Vehicle Type	REML Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve. Night	Ldn	CNEL	Centerline Distance to Noise Contour (in feet)				
Automobiles	69.34	-2.38	-2.28	-1.20	63.49	61.11	59.82	53.77	62.20	62.83	70 dBA:	27	29
Medium Trucks	77.62	-17.24	-2.28	-1.20	56.90	37.69	29.91	39.12	45.27	45.30	65 dBA:	58	63
Heavy Trucks	82.14	-15.03	-2.28	-1.20	63.64	46.65	38.86	48.07	54.23	54.26	60 dBA:	125	136
Total:				67.02	61.29	59.86	54.92	62.92	63.46		55 dBA:	270	293

FHWA-RD-77-108 HIGHWAY TRAFFIC NOISE PREDICTION MODEL

Scenario: EXISTING WITH PROJECT CONDITIONS

Project: Magnolia Ranch
Site Conditions: Soft

Road Name: Schleisman Road **Segment:** West of Scholar Way **Roadway Classification:** Urban Arterial
Average Daily Traffic: 9400 Vehicles Vehicle Speed: 45 MPH Vehicle Mix: 2

Vehicle Type	NOISE PARAMETERS AT 80 FEET FROM CENTERLINE (Equiv. Lane Dist: 69.85 ft)					Centerline Distance to Noise Contour (in feet)							
	REML Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL				
Automobiles	69.34	-2.47	-2.28	-1.20	63.39	61.02	59.73	53.68	62.11	62.74	70 dBA:	27	29
Medium Trucks	77.62	-17.34	-2.28	-1.20	56.81	37.60	29.82	39.02	45.18	45.21	65 dBA:	57	62
Heavy Trucks	82.14	-15.12	-2.28	-1.20	63.54	46.55	38.77	47.98	54.14	54.17	60 dBA:	123	134
Total:											55 dBA:	266	289

Road Name: Schleisman Road **Segment:** East of Scholar Way

Average Daily Traffic: 8600 Vehicles Vehicle Speed: 45 MPH Vehicle Mix: 2 **Roadway Classification:** Urban Arterial

Vehicle Type	NOISE PARAMETERS AT 80 FEET FROM CENTERLINE (Equiv. Lane Dist: 69.85 ft)					Centerline Distance to Noise Contour (in feet)							
	REML Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL				
Automobiles	69.34	-2.85	-2.28	-1.20	63.01	60.64	59.34	53.29	61.72	62.35	70 dBA:	25	27
Medium Trucks	77.62	-17.72	-2.28	-1.20	56.42	37.21	29.43	38.64	44.79	44.83	65 dBA:	54	59
Heavy Trucks	82.14	-15.50	-2.28	-1.20	63.16	46.17	38.39	47.59	53.75	53.78	60 dBA:	116	126
Total:											55 dBA:	251	272

Road Name: Orange Street **Segment:** East of Summer Avenue

Average Daily Traffic: 1250 Vehicles Vehicle Speed: 30 MPH Vehicle Mix: 1 **Roadway Classification:** Collector

Vehicle Type	NOISE PARAMETERS AT 40 FEET FROM CENTERLINE (Equiv. Lane Dist: 38.97 ft)					Centerline Distance to Noise Contour (in feet)							
	REML Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL				
Automobiles	62.51	-9.22	1.52	-1.20	53.61	51.49	50.17	44.16	52.58	53.21	70 dBA:	3	3
Medium Trucks	73.11	-26.46	1.52	-1.20	46.97	25.73	31.75	13.45	26.60	29.35	65 dBA:	6	7
Heavy Trucks	80.26	-30.42	1.52	-1.20	50.17	24.81	21.41	26.06	32.26	32.36	60 dBA:	13	14
Total:											55 dBA:	28	31

Road Name: Orange Street **Segment:** West of Scholar Way

Average Daily Traffic: 2650 Vehicles Vehicle Speed: 30 MPH Vehicle Mix: 1 **Roadway Classification:** Collector

Vehicle Type	NOISE PARAMETERS AT 100 FEET FROM CENTERLINE (Equiv. Lane Dist: 99.59 ft)					Centerline Distance to Noise Contour (in feet)							
	REML Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL				
Automobiles	62.51	-5.96	-4.59	-1.20	50.76	48.64	47.33	41.31	49.73	50.36	70 dBA:	4	5
Medium Trucks	73.11	-23.20	-4.59	-1.20	44.13	22.88	28.90	10.60	23.75	26.50	65 dBA:	10	11
Heavy Trucks	80.26	-27.15	-4.59	-1.20	47.32	21.97	18.57	23.21	29.41	29.51	60 dBA:	21	23
Total:											55 dBA:	45	49

FHWA-RD-77-108 HIGHWAY TRAFFIC NOISE PREDICTION MODEL

Scenario: OPENING YEAR 2024 WITHOUT PROJECT CONDITIONS

Project: Magnolia Ranch

Site Conditions: Soft

Vehicle Type	Vehicle Mix 1 (Local)			Vehicle Mix 2 (Arterial)			Vehicle Mix 3 (Hwy 111)		
	Day	Evening	Night	Day	Evening	Night	Day	Evening	Night
Automobiles	73.60%	13.60%	10.22%	69.50%	12.90%	9.60%	73.40%	9.70%	16.90%
Medium Trucks	0.90%	0.90%	0.04%	1.44%	0.06%	1.50%	80.30%	5.50%	14.20%
Heavy Trucks	0.35%	0.04%	0.35%	2.40%	0.10%	2.50%	71.70%	6.50%	21.80%
			0.74%			5.00%			2.11%

Road Name: Summer Avenue		Segment: North of Schleisman Road		Roadway Classification: Major							
Average Daily Traffic: 11800 Vehicles		Vehicle Speed: 45 MPH		Vehicle Mix: 2							
NOISE PARAMETERS AT 85 FEET FROM CENTERLINE (Equiv. Lane Dist: 81.54 ft)											
Noise Adjustments											
Vehicle Type	REML Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL	Centerline Distance to Noise Contour (in feet)	
Automobiles	69.34	-1.48	-3.29	-1.20	63.37	61.00	59.71	53.65	62.09	62.72	70 dBA: 28
Medium Trucks	77.62	-16.35	-3.29	-1.20	56.79	37.58	29.80	39.00	45.16	45.19	65 dBA: 61
Heavy Trucks	82.14	-14.13	-3.29	-1.20	63.52	46.53	38.75	47.96	54.11	54.15	60 dBA: 131
Total:				66.90	61.17	59.75	54.81	62.80	63.35	55 dBA: 282	306

Road Name: Summer Avenue		Segment: South of Schleisman Road		Roadway Classification: Major							
Average Daily Traffic: 10600 Vehicles		Vehicle Speed: 45 MPH		Vehicle Mix: 2							
NOISE PARAMETERS AT 45 FEET FROM CENTERLINE (Equiv. Lane Dist: 38.07 ft)											
Noise Adjustments											
Vehicle Type	REML Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL	Centerline Distance to Noise Contour (in feet)	
Automobiles	69.34	-1.95	1.67	-1.20	67.87	65.50	64.21	58.15	66.58	67.21	70 dBA: 30
Medium Trucks	77.62	-16.81	1.67	-1.20	61.28	42.07	34.29	43.50	49.65	49.69	65 dBA: 64
Heavy Trucks	82.14	-14.59	1.67	-1.20	68.02	51.03	43.25	52.46	58.61	58.65	60 dBA: 138
Total:				71.40	65.67	64.24	59.30	67.30	67.85	55 dBA: 297	323

Road Name: Summer Avenue		Segment: South of Orange Street		Roadway Classification: Major							
Average Daily Traffic: 9000 Vehicles		Vehicle Speed: 45 MPH		Vehicle Mix: 2							
NOISE PARAMETERS AT 60 FEET FROM CENTERLINE (Equiv. Lane Dist: 54.99 ft)											
Noise Adjustments											
Vehicle Type	REML Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL	Centerline Distance to Noise Contour (in feet)	
Automobiles	69.34	-2.66	-0.72	-1.20	64.76	62.39	61.10	55.04	63.48	64.11	70 dBA: 25
Medium Trucks	77.62	-17.52	-0.72	-1.20	58.18	38.97	31.19	40.39	46.55	46.58	65 dBA: 53
Heavy Trucks	82.14	-15.31	-0.72	-1.20	64.91	47.92	40.14	49.35	55.50	55.54	60 dBA: 114
Total:				68.29	62.56	61.14	56.20	64.19	64.74	55 dBA: 246	268

FHWA-RD-77-108 HIGHWAY TRAFFIC NOISE PREDICTION MODEL

Scenario: OPENING YEAR 2024 WITHOUT PROJECT CONDITIONS

Project: Magnolia Ranch
Site Conditions: Soft

Road Name: Scholar Way		Segment: North of Schleisman Road		Roadway Classification: Secondary									
Average Daily Traffic: 8050 Vehicles		Vehicle Speed: 35 MPH		Vehicle Mix: 1									
NOISE PARAMETERS AT 70 FEET FROM CENTERLINE (Equiv. Lane Dist: 67.65 ft)													
Noise Adjustments			Unmitigated Noise Levels										
Vehicle Type	REME L Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL	Centerline Distance to Noise Contour (in feet)	Ldn	CNEL	
Automobiles	65.11	-1.80	-2.07	-1.20	60.04	57.91	56.60	50.59	59.01	59.63	70 dBA:	13	14
Medium Trucks	74.83	-19.04	-2.07	-1.20	52.52	31.27	37.29	18.99	32.14	34.89	65 dBA:	28	31
Heavy Trucks	80.05	-23.00	-2.07	-1.20	53.78	28.43	25.03	29.68	35.88	35.97	60 dBA:	60	67
Total:				61.54	57.93	56.65	50.63	59.04	59.67	55 dBA:	130	143	

Road Name: Scholar Way		Segment: South of Schleisman Road		Roadway Classification: Secondary									
Average Daily Traffic: 7550 Vehicles		Vehicle Speed: 35 MPH		Vehicle Mix: 1									
NOISE PARAMETERS AT 60 FEET FROM CENTERLINE (Equiv. Lane Dist: 57.24 ft)													
Noise Adjustments			Unmitigated Noise Levels										
Vehicle Type	REME L Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL	Centerline Distance to Noise Contour (in feet)	Ldn	CNEL	
Automobiles	65.11	-2.08	-0.98	-1.20	60.85	58.72	57.41	51.40	59.82	60.44	70 dBA:	13	14
Medium Trucks	74.83	-19.32	-0.98	-1.20	53.33	32.08	38.10	19.80	32.95	35.70	65 dBA:	27	30
Heavy Trucks	80.05	-23.27	-0.98	-1.20	54.59	29.24	25.84	30.49	36.69	36.78	60 dBA:	59	65
Total:				62.35	58.74	57.46	51.44	59.85	60.48	55 dBA:	126	139	

Road Name: Scholar Way		Segment: South of Orange Street		Roadway Classification: Secondary									
Average Daily Traffic: 7800 Vehicles		Vehicle Speed: 35 MPH		Vehicle Mix: 1									
NOISE PARAMETERS AT 60 FEET FROM CENTERLINE (Equiv. Lane Dist: 57.24 ft)													
Noise Adjustments			Unmitigated Noise Levels										
Vehicle Type	REME L Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL	Centerline Distance to Noise Contour (in feet)	Ldn	CNEL	
Automobiles	65.11	-1.94	-0.98	-1.20	60.99	58.86	57.55	51.54	59.96	60.59	70 dBA:	13	14
Medium Trucks	74.83	-19.18	-0.98	-1.20	53.47	32.22	38.24	19.95	33.09	35.84	65 dBA:	28	31
Heavy Trucks	80.05	-23.13	-0.98	-1.20	54.73	29.38	25.98	30.63	36.83	36.92	60 dBA:	60	66
Total:				62.49	58.88	57.61	51.58	59.99	60.62	55 dBA:	129	142	

Road Name: Scholar Way		Segment: South of Baltimore Street		Roadway Classification: Secondary									
Average Daily Traffic: 8500 Vehicles		Vehicle Speed: 35 MPH		Vehicle Mix: 1									
NOISE PARAMETERS AT 75 FEET FROM CENTERLINE (Equiv. Lane Dist: 72.81 ft)													
Noise Adjustments			Unmitigated Noise Levels										
Vehicle Type	REME L Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL	Centerline Distance to Noise Contour (in feet)	Ldn	CNEL	
Automobiles	65.11	-1.57	-2.55	-1.20	59.79	57.67	56.36	50.35	58.76	59.39	70 dBA:	13	15
Medium Trucks	74.83	-18.80	-2.55	-1.20	52.27	31.02	37.04	18.75	31.90	34.65	65 dBA:	29	32
Heavy Trucks	80.05	-22.76	-2.55	-1.20	53.54	28.18	24.78	29.43	35.63	35.73	60 dBA:	62	69
Total:				61.30	57.68	56.41	50.38	58.79	59.42	55 dBA:	134	148	

FHWA-RD-77-108 HIGHWAY TRAFFIC NOISE PREDICTION MODEL

Scenario: OPENING YEAR 2024 WITHOUT PROJECT CONDITIONS

Project: Magnolia Ranch
Site Conditions: Soft

Road Name: Hamner Avenue **Segment: North of Schleisman Road**
Average Daily Traffic: 28800 Vehicles Vehicle Speed: 45 MPH Vehicle Mix: 2 Roadway Classification: Urban Arterial

Vehicle Type	NOISE PARAMETERS AT 90 FEET FROM CENTERLINE (Equiv. Lane Dist: 81.11 ft)					Centerline Distance to Noise Contour (in feet)						
	REML Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL			
Automobiles	69.34	2.39	-3.26	-1.20	67.28	64.91	63.62	57.56	66.00	66.63	70 dBA: 54	59
Medium Trucks	77.62	-12.47	-3.26	-1.20	60.69	41.49	33.71	42.91	49.07	49.10	65 dBA: 117	127
Heavy Trucks	82.14	-10.25	-3.26	-1.20	67.43	50.44	42.66	51.87	58.02	58.06	60 dBA: 252	274
Total:											55 dBA: 543	591

Road Name: Hamner Avenue **Segment: South of Schleisman Road**

Average Daily Traffic: 28600 Vehicles Vehicle Speed: 45 MPH Vehicle Mix: 2 Roadway Classification: Urban Arterial

Vehicle Type	NOISE PARAMETERS AT 100 FEET FROM CENTERLINE (Equiv. Lane Dist: 92.08 ft)					Centerline Distance to Noise Contour (in feet)						
	REML Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL			
Automobiles	69.34	2.36	-4.08	-1.20	66.43	64.06	62.76	56.71	65.14	65.77	70 dBA: 53	58
Medium Trucks	77.62	-12.50	-4.08	-1.20	59.84	40.63	32.85	42.06	48.21	48.24	65 dBA: 114	124
Heavy Trucks	82.14	-10.28	-4.08	-1.20	66.58	49.59	41.80	51.01	57.17	57.20	60 dBA: 246	267
Total:											55 dBA: 529	576

Road Name: Schleisman Road

Segment: West of Sumner Avenue

Average Daily Traffic: 20100 Vehicles Vehicle Speed: 45 MPH Vehicle Mix: 2 Roadway Classification: Major

Vehicle Type	NOISE PARAMETERS AT 70 FEET FROM CENTERLINE (Equiv. Lane Dist: 65.76 ft)					Centerline Distance to Noise Contour (in feet)						
	REML Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL			
Automobiles	69.34	0.83	-1.89	-1.20	67.09	64.72	63.42	57.37	65.80	66.43	70 dBA: 41	45
Medium Trucks	77.62	-14.03	-1.89	-1.20	60.50	41.29	33.51	42.72	48.87	48.91	65 dBA: 88	96
Heavy Trucks	82.14	-11.82	-1.89	-1.20	67.24	50.25	42.47	51.67	57.83	57.86	60 dBA: 190	207
Total:											55 dBA: 410	446

Road Name: Schleisman Road

Segment: East of Sumner Avenue

Average Daily Traffic: 10900 Vehicles Vehicle Speed: 45 MPH Vehicle Mix: 2 Roadway Classification: Urban Arterial

Vehicle Type	NOISE PARAMETERS AT 80 FEET FROM CENTERLINE (Equiv. Lane Dist: 69.85 ft)					Centerline Distance to Noise Contour (in feet)						
	REML Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL			
Automobiles	69.34	-1.83	-2.28	-1.20	64.04	61.67	60.37	54.32	62.75	63.38	70 dBA: 29	32
Medium Trucks	77.62	-16.69	-2.28	-1.20	57.45	38.24	30.46	39.67	45.82	45.86	65 dBA: 63	69
Heavy Trucks	82.14	-14.47	-2.28	-1.20	64.19	47.20	39.42	48.62	54.78	54.81	60 dBA: 136	148
Total:											55 dBA: 294	319

FHWA-RD-77-108 HIGHWAY TRAFFIC NOISE PREDICTION MODEL

Scenario: OPENING YEAR 2024 WITHOUT PROJECT CONDITIONS

Project: Magnolia Ranch
Site Conditions: Soft

Road Name: Schleisman Road		Segment: West of Scholar Way		Roadway Classification: Urban Arterial									
Average Daily Traffic: 10750 Vehicles		Vehicle Speed: 45 MPH		Vehicle Mix: 2									
NOISE PARAMETERS AT 80 FEET FROM CENTERLINE (Equiv. Lane Dist: 69.85 ft)													
Noise Adjustments			Unmitigated Noise Levels										
Vehicle Type	REMEL Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve. Night	Ldn	CNEL	Centerline Distance to Noise Contour (in feet)				
Automobiles	69.34	-1.89	-2.28	-1.20	63.98	61.61	60.31	54.26	62.69	63.32	70 dBA:	29	32
Medium Trucks	77.62	-16.75	-2.28	-1.20	57.39	38.18	30.40	39.61	45.76	45.80	65 dBA:	63	68
Heavy Trucks	82.14	-14.53	-2.28	-1.20	64.13	47.14	39.36	48.56	54.72	54.75	60 dBA:	135	147
Total:				67.51	61.78	60.35	55.41	63.41	63.95		55 dBA:	291	316

Road Name: Schleisman Road		Segment: East of Scholar Way		Roadway Classification: Urban Arterial									
Average Daily Traffic: 9850 Vehicles		Vehicle Speed: 45 MPH		Vehicle Mix: 2									
NOISE PARAMETERS AT 80 FEET FROM CENTERLINE (Equiv. Lane Dist: 69.85 ft)													
Noise Adjustments			Unmitigated Noise Levels										
Vehicle Type	REMEL Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve. Night	Ldn	CNEL	Centerline Distance to Noise Contour (in feet)				
Automobiles	69.34	-2.27	-2.28	-1.20	63.60	61.23	59.93	53.88	62.31	62.94	70 dBA:	27	30
Medium Trucks	77.62	-17.13	-2.28	-1.20	57.01	37.80	30.02	39.23	45.38	45.42	65 dBA:	59	64
Heavy Trucks	82.14	-14.91	-2.28	-1.20	63.75	46.76	38.98	48.18	54.34	54.37	60 dBA:	127	138
Total:				67.13	61.40	59.97	55.03	63.03	63.57		55 dBA:	274	298

Road Name: Orange Street		Segment: East of Summer Avenue		Roadway Classification: Collector									
Average Daily Traffic: 1350 Vehicles		Vehicle Speed: 30 MPH		Vehicle Mix: 1									
NOISE PARAMETERS AT 40 FEET FROM CENTERLINE (Equiv. Lane Dist: 38.97 ft)													
Noise Adjustments			Unmitigated Noise Levels										
Vehicle Type	REMEL Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve. Night	Ldn	CNEL	Centerline Distance to Noise Contour (in feet)				
Automobiles	62.51	-8.89	1.52	-1.20	53.94	51.82	50.51	44.50	52.92	53.54	70 dBA:	3	3
Medium Trucks	73.11	-26.13	1.52	-1.20	47.31	26.06	32.08	13.79	26.93	29.68	65 dBA:	6	7
Heavy Trucks	80.26	-30.08	1.52	-1.20	50.50	25.15	21.75	26.40	32.60	32.69	60 dBA:	14	15
Total:				56.17	51.84	50.58	44.57	52.97	53.60		55 dBA:	29	32

Road Name: Orange Street		Segment: West of Scholar Way		Roadway Classification: Collector									
Average Daily Traffic: 2750 Vehicles		Vehicle Speed: 30 MPH		Vehicle Mix: 1									
NOISE PARAMETERS AT 100 FEET FROM CENTERLINE (Equiv. Lane Dist: 99.59 ft)													
Noise Adjustments			Unmitigated Noise Levels										
Vehicle Type	REMEL Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve. Night	Ldn	CNEL	Centerline Distance to Noise Contour (in feet)				
Automobiles	62.51	-5.80	-4.59	-1.20	50.92	48.80	47.49	41.48	49.89	50.52	70 dBA:	5	5
Medium Trucks	73.11	-23.04	-4.59	-1.20	44.29	23.04	29.06	10.77	23.91	26.66	65 dBA:	10	11
Heavy Trucks	80.26	-26.99	-4.59	-1.20	47.48	22.13	18.73	23.38	29.57	29.67	60 dBA:	21	24
Total:				53.15	48.82	47.55	41.55	49.95	50.57		55 dBA:	46	51

FHWA-RD-77-108 HIGHWAY TRAFFIC NOISE PREDICTION MODEL

Scenario: OPENING YEAR 2024 WITH PROJECT CONDITIONS

Project: Magnolia Ranch

Site Conditions: Soft

Vehicle Type	Vehicle Mix 1 (Local)			Vehicle Mix 2 (Arterial)			Vehicle Mix 3 (Hwy 111)			
	Day	Evening	Night	Day	Evening	Night	Day	Evening	Night	Daily
Automobiles	73.60%	13.60%	10.22%	97.42%	12.90%	9.60%	92.00%	73.40%	9.70%	16.90%
Medium Trucks	0.90%	0.90%	0.04%	1.84%	0.06%	1.50%	3.00%	80.30%	5.50%	14.20%
Heavy Trucks	0.35%	0.04%	0.35%	0.74%	2.40%	0.10%	5.00%	71.70%	6.50%	21.80%

Road Name: Summer Avenue **Segment:** North of Schleisman Road

Average Daily Traffic: 11900 Vehicles Vehicle Speed: 45 MPH Vehicle Mix: 2 Roadway Classification: Major

Vehicle Type	NOISE PARAMETERS AT 85 FEET FROM CENTERLINE (Equiv. Lane Dist: 81.54 ft)						Centerline Distance to Noise Contour (in feet)							
	REML Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL					
Automobiles	69.34	-1.44	-3.29	63.41	61.04	59.75	53.69	62.12	62.75					
Medium Trucks	77.62	-16.31	-3.29	56.82	37.61	29.83	39.04	45.19	45.23					
Heavy Trucks	82.14	-14.09	-3.29	63.56	46.57	38.79	48.00	54.15	54.19					
Total:									66.94	61.21	59.78	54.84	62.84	63.39

Road Name: Summer Avenue **Segment:** South of Schleisman Road

Average Daily Traffic: 10750 Vehicles Vehicle Speed: 45 MPH Vehicle Mix: 2 Roadway Classification: Major

Vehicle Type	NOISE PARAMETERS AT 45 FEET FROM CENTERLINE (Equiv. Lane Dist: 38.07 ft)						Centerline Distance to Noise Contour (in feet)							
	REML Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL					
Automobiles	69.34	-1.89	1.67	67.93	65.56	64.27	58.21	66.64	67.27					
Medium Trucks	77.62	-16.75	1.67	61.34	42.13	34.35	43.56	49.72	49.75					
Heavy Trucks	82.14	-14.53	1.67	68.08	51.09	43.31	52.52	58.67	58.71					
Total:									71.46	65.73	64.31	59.36	67.36	67.91

Road Name: Summer Avenue **Segment:** South of Orange Street

Average Daily Traffic: 9000 Vehicles Vehicle Speed: 45 MPH Vehicle Mix: 2 Roadway Classification: Major

Vehicle Type	NOISE PARAMETERS AT 60 FEET FROM CENTERLINE (Equiv. Lane Dist: 54.99 ft)						Centerline Distance to Noise Contour (in feet)							
	REML Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL					
Automobiles	69.34	-2.66	-0.72	64.76	62.39	61.10	55.04	63.48	64.11					
Medium Trucks	77.62	-17.52	-0.72	58.18	38.97	31.19	40.39	46.55	46.58					
Heavy Trucks	82.14	-15.31	-0.72	64.91	47.92	40.14	49.35	55.50	55.54					
Total:									68.29	62.56	61.14	56.20	64.19	64.74

FHWA-RD-77-108 HIGHWAY TRAFFIC NOISE PREDICTION MODEL

Scenario: OPENING YEAR 2024 WITH PROJECT CONDITIONS

Project: Magnolia Ranch
Site Conditions: Soft

Road Name: Scholar Way		Segment: North of Schleisman Road		Roadway Classification: Secondary									
Average Daily Traffic: 8150 Vehicles		Vehicle Speed: 35 MPH		Vehicle Mix: 1									
NOISE PARAMETERS AT 70 FEET FROM CENTERLINE (Equiv. Lane Dist: 67.65 ft)													
Noise Adjustments			Unmitigated Noise Levels										
Vehicle Type	REME L Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL	Centerline Distance to Noise Contour (in feet)	Ldn	CNEL	
Automobiles	65.11	-1.75	-2.07	-1.20	60.09	57.97	56.65	50.64	59.06	59.69	70 dBA:	13	14
Medium Trucks	74.83	-18.99	-2.07	-1.20	52.57	31.32	37.34	19.05	32.19	34.94	65 dBA:	28	31
Heavy Trucks	80.05	-22.94	-2.07	-1.20	53.83	28.48	25.08	29.73	35.93	36.02	60 dBA:	61	67
Total:				61.59	57.98	56.71	50.68	59.09	59.72		55 dBA:	131	144

Road Name: Scholar Way		Segment: South of Schleisman Road		Roadway Classification: Secondary									
Average Daily Traffic: 7750 Vehicles		Vehicle Speed: 35 MPH		Vehicle Mix: 1									
NOISE PARAMETERS AT 60 FEET FROM CENTERLINE (Equiv. Lane Dist: 57.24 ft)													
Noise Adjustments			Unmitigated Noise Levels										
Vehicle Type	REME L Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL	Centerline Distance to Noise Contour (in feet)	Ldn	CNEL	
Automobiles	65.11	-1.97	-0.98	-1.20	60.96	58.84	57.52	51.51	59.93	60.56	70 dBA:	13	14
Medium Trucks	74.83	-19.20	-0.98	-1.20	53.44	32.19	38.21	19.92	33.06	35.81	65 dBA:	28	30
Heavy Trucks	80.05	-23.16	-0.98	-1.20	54.70	29.35	25.95	30.60	36.80	36.89	60 dBA:	60	66
Total:				62.46	58.85	57.58	51.55	59.96	60.59		55 dBA:	128	142

Road Name: Scholar Way		Segment: South of Orange Street		Roadway Classification: Secondary									
Average Daily Traffic: 7850 Vehicles		Vehicle Speed: 35 MPH		Vehicle Mix: 1									
NOISE PARAMETERS AT 60 FEET FROM CENTERLINE (Equiv. Lane Dist: 57.24 ft)													
Noise Adjustments			Unmitigated Noise Levels										
Vehicle Type	REME L Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL	Centerline Distance to Noise Contour (in feet)	Ldn	CNEL	
Automobiles	65.11	-1.91	-0.98	-1.20	61.02	58.89	57.58	51.57	59.99	60.61	70 dBA:	13	14
Medium Trucks	74.83	-19.15	-0.98	-1.20	53.50	32.25	38.27	19.97	33.12	35.87	65 dBA:	28	31
Heavy Trucks	80.05	-23.11	-0.98	-1.20	54.76	29.41	26.01	30.66	36.85	36.95	60 dBA:	60	66
Total:				62.52	58.91	57.63	51.61	60.02	60.65		55 dBA:	130	143

Road Name: Scholar Way		Segment: South of Baltimore Street		Roadway Classification: Secondary									
Average Daily Traffic: 8550 Vehicles		Vehicle Speed: 35 MPH		Vehicle Mix: 1									
NOISE PARAMETERS AT 75 FEET FROM CENTERLINE (Equiv. Lane Dist: 72.81 ft)													
Noise Adjustments			Unmitigated Noise Levels										
Vehicle Type	REME L Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL	Centerline Distance to Noise Contour (in feet)	Ldn	CNEL	
Automobiles	65.11	-1.54	-2.55	-1.20	59.82	57.70	56.38	50.37	58.79	59.42	70 dBA:	13	15
Medium Trucks	74.83	-18.78	-2.55	-1.20	52.30	31.05	37.07	18.78	31.92	34.67	65 dBA:	29	32
Heavy Trucks	80.05	-22.73	-2.55	-1.20	53.56	28.21	24.81	29.46	35.66	35.75	60 dBA:	63	69
Total:				61.32	57.71	56.44	50.41	58.82	59.45		55 dBA:	135	149

FHWA-RD-77-108 HIGHWAY TRAFFIC NOISE PREDICTION MODEL

Scenario: OPENING YEAR 2024 WITH PROJECT CONDITIONS

Project: Magnolia Ranch
Site Conditions: Soft

Road Name: Hamner Avenue **Segment:** North of Schleisman Road **Roadway Classification:** Urban Arterial
Average Daily Traffic: 28800 Vehicles Vehicle Speed: 45 MPH Vehicle Mix: 2

Vehicle Type	NOISE PARAMETERS AT 90 FEET FROM CENTERLINE (Equiv. Lane Dist: 81.11 ft)					Centerline Distance to Noise Contour (in feet)												
	REML Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL									
Automobiles	69.34	2.39	-3.26	-1.20	67.28	64.91	63.62	57.56	66.00	66.63	70 dBA: 54	59						
Medium Trucks	77.62	-12.47	-3.26	-1.20	60.69	41.49	33.71	42.91	49.07	49.10	65 dBA: 117	127						
Heavy Trucks	82.14	-10.25	-3.26	-1.20	67.43	50.44	42.66	51.87	58.02	58.06	60 dBA: 252	274						
Total:											70.81	65.08	63.66	58.72	66.71	67.26	55 dBA: 543	591

Road Name: Hamner Avenue **Segment:** South of Schleisman Road

Average Daily Traffic: 28650 Vehicles Vehicle Speed: 45 MPH Vehicle Mix: 2 **Roadway Classification:** Urban Arterial

Vehicle Type	NOISE PARAMETERS AT 100 FEET FROM CENTERLINE (Equiv. Lane Dist: 92.08 ft)					Centerline Distance to Noise Contour (in feet)												
	REML Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL									
Automobiles	69.34	2.37	-4.08	-1.20	66.43	64.06	62.77	56.72	65.15	65.78	70 dBA: 53	58						
Medium Trucks	77.62	-12.50	-4.08	-1.20	59.85	40.64	32.86	42.06	48.22	48.25	65 dBA: 114	124						
Heavy Trucks	82.14	-10.28	-4.08	-1.20	66.58	49.59	41.81	51.02	57.17	57.21	60 dBA: 246	267						
Total:											69.96	64.23	62.81	57.87	65.86	66.41	55 dBA: 530	576

Road Name: Schleisman Road

Average Daily Traffic: 20150 Vehicles Vehicle Speed: 45 MPH Vehicle Mix: 2 **Segment:** West of Sumner Avenue

Roadway Classification: Major

Vehicle Type	NOISE PARAMETERS AT 70 FEET FROM CENTERLINE (Equiv. Lane Dist: 65.76 ft)					Centerline Distance to Noise Contour (in feet)												
	REML Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL									
Automobiles	69.34	0.84	-1.89	-1.20	67.10	64.73	63.43	57.38	65.81	66.44	70 dBA: 41	45						
Medium Trucks	77.62	-14.02	-1.89	-1.20	60.51	41.30	33.52	42.73	48.88	48.92	65 dBA: 89	96						
Heavy Trucks	82.14	-11.81	-1.89	-1.20	67.25	50.26	42.48	51.69	57.84	57.87	60 dBA: 191	207						
Total:											70.63	64.90	63.47	58.53	66.53	67.07	55 dBA: 411	447

Road Name: Schleisman Road

Average Daily Traffic: 10900 Vehicles Vehicle Speed: 45 MPH Vehicle Mix: 2 **Segment:** East of Sumner Avenue

Roadway Classification: Urban Arterial

Vehicle Type	NOISE PARAMETERS AT 80 FEET FROM CENTERLINE (Equiv. Lane Dist: 69.85 ft)					Centerline Distance to Noise Contour (in feet)												
	REML Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL									
Automobiles	69.34	-1.83	-2.28	-1.20	64.04	61.67	60.37	54.32	62.75	63.38	70 dBA: 29	32						
Medium Trucks	77.62	-16.69	-2.28	-1.20	57.45	38.24	30.46	39.67	45.82	45.86	65 dBA: 63	69						
Heavy Trucks	82.14	-14.47	-2.28	-1.20	64.19	47.20	39.42	48.62	54.78	54.81	60 dBA: 136	148						
Total:											67.57	61.84	60.41	55.47	63.47	64.01	55 dBA: 294	319

FHWA-RD-77-108 HIGHWAY TRAFFIC NOISE PREDICTION MODEL

Scenario: OPENING YEAR 2024 WITH PROJECT CONDITIONS

Project: Magnolia Ranch
Site Conditions: Soft

Road Name: Schleisman Road **Segment: West of Scholar Way**
Average Daily Traffic: 10750 Vehicles Vehicle Speed: 45 MPH Vehicle Mix: 2 Roadway Classification: Urban Arterial

Vehicle Type	NOISE PARAMETERS AT 80 FEET FROM CENTERLINE (Equiv. Lane Dist: 69.85 ft)					Centerline Distance to Noise Contour (in feet)													
	REML Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL										
Automobiles	69.34	-1.89	-2.28	-1.20	63.98	61.61	60.31	54.26	62.69	63.32	70 dBA:	29	32						
Medium Trucks	77.62	-16.75	-2.28	-1.20	57.39	38.18	30.40	39.61	45.76	45.80	65 dBA:	63	68						
Heavy Trucks	82.14	-14.53	-2.28	-1.20	64.13	47.14	39.36	48.56	54.72	54.75	60 dBA:	135	147						
Total:											67.51	61.78	60.35	55.41	63.41	63.95	55 dBA:	291	316

Road Name: Schleisman Road **Segment: East of Scholar Way**

Average Daily Traffic: 9900 Vehicles Vehicle Speed: 45 MPH Vehicle Mix: 2 Roadway Classification: Urban Arterial

Vehicle Type	NOISE PARAMETERS AT 80 FEET FROM CENTERLINE (Equiv. Lane Dist: 69.85 ft)					Centerline Distance to Noise Contour (in feet)													
	REML Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL										
Automobiles	69.34	-2.24	-2.28	-1.20	63.62	61.25	59.95	53.90	62.33	62.96	70 dBA:	28	30						
Medium Trucks	77.62	-17.11	-2.28	-1.20	57.03	37.82	30.04	39.25	45.40	45.44	65 dBA:	59	64						
Heavy Trucks	82.14	-14.89	-2.28	-1.20	63.77	46.78	39.00	48.21	54.36	54.39	60 dBA:	128	139						
Total:											67.15	61.42	59.99	55.05	63.05	63.60	55 dBA:	275	299

Road Name: Orange Street

Segment: East of Summer Avenue

Average Daily Traffic: 1500 Vehicles Vehicle Speed: 30 MPH Vehicle Mix: 1 Roadway Classification: Collector

Vehicle Type	NOISE PARAMETERS AT 40 FEET FROM CENTERLINE (Equiv. Lane Dist: 38.97 ft)					Centerline Distance to Noise Contour (in feet)													
	REML Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL										
Automobiles	62.51	-8.43	1.52	-1.20	54.40	52.28	50.97	44.95	53.37	54.00	70 dBA:	3	3						
Medium Trucks	73.11	-25.67	1.52	-1.20	47.77	26.52	32.54	14.24	27.39	30.14	65 dBA:	7	7						
Heavy Trucks	80.26	-29.62	1.52	-1.20	50.96	25.61	22.21	26.86	33.05	33.15	60 dBA:	15	16						
Total:											56.63	52.30	51.03	45.03	53.43	54.05	55 dBA:	31	35

Road Name: Orange Street

Segment: West of Scholar Way

Average Daily Traffic: 3000 Vehicles Vehicle Speed: 30 MPH Vehicle Mix: 1 Roadway Classification: Collector

Vehicle Type	NOISE PARAMETERS AT 100 FEET FROM CENTERLINE (Equiv. Lane Dist: 99.59 ft)					Centerline Distance to Noise Contour (in feet)													
	REML Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL										
Automobiles	62.51	-5.42	-4.59	-1.20	51.30	49.18	47.87	41.85	50.27	50.90	70 dBA:	5	5						
Medium Trucks	73.11	-22.66	-4.59	-1.20	44.66	23.42	29.44	11.14	24.29	27.04	65 dBA:	11	12						
Heavy Trucks	80.26	-26.61	-4.59	-1.20	47.86	22.50	19.10	23.75	29.95	30.05	60 dBA:	23	25						
Total:											53.53	49.20	47.93	41.92	50.32	50.95	55 dBA:	49	54

FHWA-RD-77-108 HIGHWAY TRAFFIC NOISE PREDICTION MODEL

Scenario: FUTURE YEAR 2040 WITHOUT PROJECT CONDITIONS

Project: Magnolia Ranch

Site Conditions: Soft

Vehicle Type	Vehicle Mix 1 (Local)			Vehicle Mix 2 (Arterial)			Vehicle Mix 3 (Hwy 111)			
	Day	Evening	Night	Day	Evening	Night	Day	Evening	Night	Daily
Automobiles	73.60%	13.60%	10.22%	69.50%	12.90%	9.60%	73.40%	9.70%	16.90%	91.40%
Medium Trucks	0.90%	0.90%	0.04%	1.44%	0.06%	1.50%	80.30%	5.50%	14.20%	6.49%
Heavy Trucks	9.00%	0.04%	0.35%	2.40%	0.10%	2.50%	71.70%	6.50%	21.80%	2.11%

Road Name: Summer Avenue		Segment: North of Schleisman Road		Roadway Classification: Major								
Average Daily Traffic: 12500 Vehicles		Vehicle Speed: 45 MPH		Vehicle Mix: 2								
NOISE PARAMETERS AT 85 FEET FROM CENTERLINE (Equiv. Lane Dist: 81.54 ft)												
Noise Adjustments												
Vehicle Type	REMEL Traffic Adj.	Dist Adj.	Finite Adj.	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL	Centerline Distance to Noise Contour (in feet)			
Automobiles	69.34	-1.23	-3.29	-1.20	63.62	61.25	59.96	53.90	62.34	62.97	70 dBA: 29	32
Medium Trucks	77.62	-16.10	-3.29	-1.20	57.04	37.83	30.05	39.25	45.41	45.44	65 dBA: 63	69
Heavy Trucks	82.14	-13.88	-3.29	-1.20	63.77	46.78	39.00	48.21	54.36	54.40	60 dBA: 136	148
Total:				67.15	61.42	60.00	55.06	63.05	63.60		55 dBA: 293	318

Road Name: Summer Avenue		Segment: South of Schleisman Road		Roadway Classification: Major								
Average Daily Traffic: 11750 Vehicles		Vehicle Speed: 45 MPH		Vehicle Mix: 2								
NOISE PARAMETERS AT 45 FEET FROM CENTERLINE (Equiv. Lane Dist: 38.07 ft)												
Noise Adjustments												
Vehicle Type	REMEL Traffic Adj.	Dist Adj.	Finite Adj.	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL	Centerline Distance to Noise Contour (in feet)			
Automobiles	69.34	-1.50	1.67	-1.20	68.32	65.95	64.65	58.60	67.03	67.66	70 dBA: 32	35
Medium Trucks	77.62	-16.37	1.67	-1.20	61.73	42.52	34.74	43.95	50.10	50.14	65 dBA: 69	75
Heavy Trucks	82.14	-14.15	1.67	-1.20	68.47	51.48	43.70	52.90	59.06	59.09	60 dBA: 148	161
Total:				71.85	66.12	64.69	59.75	67.75	68.29		55 dBA: 319	346

Road Name: Summer Avenue		Segment: South of Orange Street		Roadway Classification: Major								
Average Daily Traffic: 9300 Vehicles		Vehicle Speed: 45 MPH		Vehicle Mix: 2								
NOISE PARAMETERS AT 60 FEET FROM CENTERLINE (Equiv. Lane Dist: 54.99 ft)												
Noise Adjustments												
Vehicle Type	REMEL Traffic Adj.	Dist Adj.	Finite Adj.	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL	Centerline Distance to Noise Contour (in feet)			
Automobiles	69.34	-2.51	-0.72	-1.20	64.91	62.53	61.24	55.19	63.62	64.25	70 dBA: 25	27
Medium Trucks	77.62	-17.38	-0.72	-1.20	58.32	39.11	31.33	40.54	46.69	46.72	65 dBA: 54	59
Heavy Trucks	82.14	-15.16	-0.72	-1.20	65.06	48.07	40.28	49.49	55.65	55.68	60 dBA: 117	127
Total:				68.44	62.71	61.28	56.34	64.34	64.88		55 dBA: 252	273

FHWA-RD-77-108 HIGHWAY TRAFFIC NOISE PREDICTION MODEL

Scenario: FUTURE YEAR 2040 WITHOUT PROJECT CONDITIONS

Project: Magnolia Ranch
Site Conditions: Soft

Road Name: Scholar Way		Segment: North of Schleisman Road		Roadway Classification: Secondary									
Average Daily Traffic: 8150 Vehicles		Vehicle Speed: 35 MPH		Vehicle Mix: 1									
NOISE PARAMETERS AT 70 FEET FROM CENTERLINE (Equiv. Lane Dist: 67.65 ft)													
Noise Adjustments			Unmitigated Noise Levels										
Vehicle Type	REME L Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL	Centerline Distance to Noise Contour (in feet)	Ldn	CNEL	
Automobiles	65.11	-1.75	-2.07	-1.20	60.09	57.97	56.65	50.64	59.06	59.69	70 dBA:	13	15
Medium Trucks	74.83	-18.99	-2.07	-1.20	52.57	31.32	37.34	19.05	32.19	34.94	65 dBA:	28	31
Heavy Trucks	80.05	-22.94	-2.07	-1.20	53.83	42.58	25.08	29.73	41.01	41.04	60 dBA:	61	67
Total:				61.59	58.10	56.71	50.68	59.14	59.76	55 dBA:	132	145	

Road Name: Scholar Way		Segment: South of Schleisman Road		Roadway Classification: Secondary									
Average Daily Traffic: 7600 Vehicles		Vehicle Speed: 35 MPH		Vehicle Mix: 1									
NOISE PARAMETERS AT 60 FEET FROM CENTERLINE (Equiv. Lane Dist: 57.24 ft)													
Noise Adjustments			Unmitigated Noise Levels										
Vehicle Type	REME L Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL	Centerline Distance to Noise Contour (in feet)	Ldn	CNEL	
Automobiles	65.11	-2.05	-0.98	-1.20	60.87	58.75	57.44	51.43	59.85	60.47	70 dBA:	13	14
Medium Trucks	74.83	-19.29	-0.98	-1.20	53.35	32.11	38.13	19.83	32.98	35.73	65 dBA:	28	30
Heavy Trucks	80.05	-23.25	-0.98	-1.20	54.62	43.37	25.87	30.51	41.80	41.83	60 dBA:	59	65
Total:				62.38	58.88	57.49	51.46	59.92	60.55	55 dBA:	128	141	

Road Name: Scholar Way		Segment: South of Orange Street		Roadway Classification: Secondary									
Average Daily Traffic: 8200 Vehicles		Vehicle Speed: 35 MPH		Vehicle Mix: 1									
NOISE PARAMETERS AT 60 FEET FROM CENTERLINE (Equiv. Lane Dist: 57.24 ft)													
Noise Adjustments			Unmitigated Noise Levels										
Vehicle Type	REME L Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL	Centerline Distance to Noise Contour (in feet)	Ldn	CNEL	
Automobiles	65.11	-1.72	-0.98	-1.20	61.20	59.08	57.77	51.76	60.18	60.80	70 dBA:	13	15
Medium Trucks	74.83	-18.96	-0.98	-1.20	53.68	32.44	38.46	20.16	33.31	36.06	65 dBA:	29	32
Heavy Trucks	80.05	-22.92	-0.98	-1.20	54.95	43.70	26.20	30.84	42.13	42.16	60 dBA:	62	69
Total:				62.71	59.21	57.82	51.79	60.25	60.88	55 dBA:	134	148	

Road Name: Scholar Way		Segment: South of Baltimore Street		Roadway Classification: Secondary									
Average Daily Traffic: 8850 Vehicles		Vehicle Speed: 35 MPH		Vehicle Mix: 1									
NOISE PARAMETERS AT 75 FEET FROM CENTERLINE (Equiv. Lane Dist: 72.81 ft)													
Noise Adjustments			Unmitigated Noise Levels										
Vehicle Type	REME L Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL	Centerline Distance to Noise Contour (in feet)	Ldn	CNEL	
Automobiles	65.11	-1.39	-2.55	-1.20	59.97	57.85	56.53	50.52	58.94	59.57	70 dBA:	14	15
Medium Trucks	74.83	-18.63	-2.55	-1.20	52.45	31.20	37.22	18.93	32.07	34.82	65 dBA:	30	33
Heavy Trucks	80.05	-22.58	-2.55	-1.20	53.71	42.46	24.96	29.61	40.89	40.92	60 dBA:	64	71
Total:				61.47	57.98	56.59	50.56	59.02	59.64	55 dBA:	139	153	

FHWA-RD-77-108 HIGHWAY TRAFFIC NOISE PREDICTION MODEL

Scenario: FUTURE YEAR 2040 WITHOUT PROJECT CONDITIONS

Project: Magnolia Ranch
Site Conditions: Soft

Road Name: Hamner Avenue **Segment:** North of Schleisman Road **Roadway Classification:** Urban Arterial
Average Daily Traffic: 29800 Vehicles Vehicle Speed: 45 MPH Vehicle Mix: 2

Vehicle Type	NOISE PARAMETERS AT 90 FEET FROM CENTERLINE (Equiv. Lane Dist: 81.11 ft)					Centerline Distance to Noise Contour (in feet)													
	REML Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL										
Automobiles	69.34	2.54	-3.26	-1.20	67.43	65.06	63.77	57.71	66.14	66.77	70 dBA:	56	60						
Medium Trucks	77.62	-12.32	-3.26	-1.20	60.84	41.63	33.85	43.06	49.22	49.25	65 dBA:	120	130						
Heavy Trucks	82.14	-10.11	-3.26	-1.20	67.58	50.59	42.81	52.02	58.17	58.21	60 dBA:	258	281						
Total:											70.96	65.23	63.81	58.86	66.86	67.41	55 dBA:	556	604

Road Name: Hamner Avenue **Segment:** South of Schleisman Road

Average Daily Traffic: 29650 Vehicles Vehicle Speed: 45 MPH Vehicle Mix: 2 **Roadway Classification:** Urban Arterial

Vehicle Type	NOISE PARAMETERS AT 100 FEET FROM CENTERLINE (Equiv. Lane Dist: 92.08 ft)					Centerline Distance to Noise Contour (in feet)													
	REML Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL										
Automobiles	69.34	2.52	-4.08	-1.20	66.58	64.21	62.92	56.86	65.30	65.93	70 dBA:	54	59						
Medium Trucks	77.62	-12.35	-4.08	-1.20	59.99	40.79	33.01	42.21	48.37	48.40	65 dBA:	117	127						
Heavy Trucks	82.14	-10.13	-4.08	-1.20	66.73	49.74	41.96	51.17	57.32	57.36	60 dBA:	252	274						
Total:											70.11	64.38	62.96	58.02	66.01	66.56	55 dBA:	542	590

Road Name: Schleisman Road

Segment: West of Sumner Avenue

Average Daily Traffic: 30900 Vehicles Vehicle Speed: 45 MPH Vehicle Mix: 2 **Roadway Classification:** Major

Vehicle Type	NOISE PARAMETERS AT 70 FEET FROM CENTERLINE (Equiv. Lane Dist: 65.76 ft)					Centerline Distance to Noise Contour (in feet)													
	REML Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL										
Automobiles	69.34	2.70	-1.89	-1.20	68.96	66.58	65.29	59.24	67.67	68.30	70 dBA:	55	59						
Medium Trucks	77.62	-12.17	-1.89	-1.20	62.37	43.16	35.38	44.59	50.74	50.77	65 dBA:	118	128						
Heavy Trucks	82.14	-9.95	-1.89	-1.20	69.11	52.12	44.33	53.54	59.70	59.73	60 dBA:	254	276						
Total:											72.49	66.76	65.33	60.39	68.39	68.93	55 dBA:	546	594

Road Name: Schleisman Road

Segment: East of Sumner Avenue

Average Daily Traffic: 28300 Vehicles Vehicle Speed: 45 MPH Vehicle Mix: 2 **Roadway Classification:** Urban Arterial

Vehicle Type	NOISE PARAMETERS AT 80 FEET FROM CENTERLINE (Equiv. Lane Dist: 69.85 ft)					Centerline Distance to Noise Contour (in feet)													
	REML Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL										
Automobiles	69.34	2.32	-2.28	-1.20	68.18	65.81	64.52	58.46	66.89	67.52	70 dBA:	55	60						
Medium Trucks	77.62	-12.55	-2.28	-1.20	61.59	42.38	34.60	43.81	49.97	50.00	65 dBA:	119	130						
Heavy Trucks	82.14	-10.33	-2.28	-1.20	68.33	51.34	43.56	52.77	58.92	58.96	60 dBA:	257	280						
Total:											71.71	65.98	64.56	59.61	67.61	68.16	55 dBA:	554	603

FHWA-RD-77-108 HIGHWAY TRAFFIC NOISE PREDICTION MODEL

Scenario: FUTURE YEAR 2040 WITHOUT PROJECT CONDITIONS

Project: Magnolia Ranch
Site Conditions: Soft

Road Name: Schleisman Road **Segment: West of Scholar Way**
Average Daily Traffic: 33000 Vehicles Vehicle Speed: 45 MPH Vehicle Mix: 2 Roadway Classification: Urban Arterial

Vehicle Type	NOISE PARAMETERS AT 80 FEET FROM CENTERLINE (Equiv. Lane Dist: 69.85 ft)					Centerline Distance to Noise Contour (in feet)													
	REMEL Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL										
Automobiles	69.34	2.99	-2.28	-1.20	68.85	66.48	65.18	59.13	67.56	68.19	70 dBA:	61	67						
Medium Trucks	77.62	-11.88	-2.28	-1.20	62.26	43.05	35.27	44.48	50.63	50.67	65 dBA:	132	144						
Heavy Trucks	82.14	-9.66	-2.28	-1.20	69.00	52.01	44.23	53.43	59.59	59.62	60 dBA:	285	310						
Total:											72.38	66.65	65.22	60.28	68.28	68.82	55 dBA:	614	668

Road Name: Schleisman Road **Segment: East of Scholar Way**

Average Daily Traffic: 26350 Vehicles Vehicle Speed: 45 MPH Vehicle Mix: 2 Roadway Classification: Urban Arterial

Vehicle Type	NOISE PARAMETERS AT 80 FEET FROM CENTERLINE (Equiv. Lane Dist: 69.85 ft)					Centerline Distance to Noise Contour (in feet)													
	REMEL Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL										
Automobiles	69.34	2.01	-2.28	-1.20	67.87	65.50	64.21	58.15	66.58	67.21	70 dBA:	53	57						
Medium Trucks	77.62	-12.86	-2.28	-1.20	61.28	42.07	34.29	43.50	49.66	49.69	65 dBA:	114	124						
Heavy Trucks	82.14	-10.64	-2.28	-1.20	68.02	51.03	43.25	52.46	58.61	58.65	60 dBA:	245	267						
Total:											71.40	65.67	64.25	59.30	67.30	67.85	55 dBA:	529	575

Road Name: Orange Street

Segment: East of Summer Avenue

Average Daily Traffic: 1650 Vehicles Vehicle Speed: 30 MPH Vehicle Mix: 1 Roadway Classification: Collector

Vehicle Type	NOISE PARAMETERS AT 40 FEET FROM CENTERLINE (Equiv. Lane Dist: 38.97 ft)					Centerline Distance to Noise Contour (in feet)													
	REMEL Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL										
Automobiles	62.51	-8.02	1.52	-1.20	54.82	52.69	51.38	45.37	53.79	54.41	70 dBA:	3	4						
Medium Trucks	73.11	-25.25	1.52	-1.20	48.18	26.93	32.95	14.66	27.80	30.55	65 dBA:	7	8						
Heavy Trucks	80.26	-29.21	1.52	-1.20	51.37	40.12	22.62	27.27	38.55	38.58	60 dBA:	16	17						
Total:											57.04	52.94	51.45	45.44	53.93	54.54	55 dBA:	34	37

Road Name: Orange Street

Segment: West of Scholar Way

Average Daily Traffic: 2900 Vehicles Vehicle Speed: 30 MPH Vehicle Mix: 1 Roadway Classification: Collector

Vehicle Type	NOISE PARAMETERS AT 100 FEET FROM CENTERLINE (Equiv. Lane Dist: 99.59 ft)					Centerline Distance to Noise Contour (in feet)													
	REMEL Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL										
Automobiles	62.51	-5.57	-4.59	-1.20	51.15	49.03	47.72	41.71	50.13	50.75	70 dBA:	5	5						
Medium Trucks	73.11	-22.80	-4.59	-1.20	44.52	23.27	29.29	11.00	24.14	26.89	65 dBA:	10	11						
Heavy Trucks	80.26	-26.76	-4.59	-1.20	47.71	36.46	18.96	23.61	34.89	34.92	60 dBA:	22	25						
Total:											53.38	49.28	47.79	41.78	50.26	50.88	55 dBA:	48	53

FHWA-RD-77-108 HIGHWAY TRAFFIC NOISE PREDICTION MODEL

Scenario: FUTURE YEAR 2040 WITH PROJECT CONDITIONS

Project: Magnolia Ranch

Site Conditions: Soft

Vehicle Type	Vehicle Mix 1 (Local)			Vehicle Mix 2 (Arterial)			Vehicle Mix 3 (Hwy 111)		
	Day	Evening	Night	Day	Evening	Night	Day	Evening	Night
Automobiles	73.60%	13.60%	10.22%	69.50%	12.90%	9.60%	73.40%	9.70%	16.90%
Medium Trucks	0.90%	0.90%	0.04%	1.44%	0.06%	1.50%	80.30%	5.50%	14.20%
Heavy Trucks	9.00%	0.04%	0.35%	2.40%	0.10%	2.50%	71.70%	6.50%	21.80%
			0.74%	5.00%					2.11%

Road Name: Summer Avenue		Segment: North of Schleisman Road		Roadway Classification: Major							
Average Daily Traffic: 12550 Vehicles		Vehicle Speed: 45 MPH		Vehicle Mix: 2							
NOISE PARAMETERS AT 85 FEET FROM CENTERLINE (Equiv. Lane Dist: 81.54 ft)											
Noise Adjustments											
Vehicle Type	REML Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL	Centerline Distance to Noise Contour (in feet)	
Automobiles	69.34	-1.21	-3.29	-1.20	63.64	61.27	59.98	53.92	62.35	62.98	70 dBA: 29
Medium Trucks	77.62	-16.08	-3.29	-1.20	57.05	37.84	30.06	39.27	45.43	45.46	65 dBA: 63
Heavy Trucks	82.14	-13.86	-3.29	-1.20	63.79	46.80	39.02	48.23	54.38	54.42	60 dBA: 148
Total:				67.17	61.44	60.02	55.07	63.07	63.62	55 dBA: 293	319

Road Name: Summer Avenue		Segment: South of Schleisman Road		Roadway Classification: Major							
Average Daily Traffic: 11900 Vehicles		Vehicle Speed: 45 MPH		Vehicle Mix: 2							
NOISE PARAMETERS AT 45 FEET FROM CENTERLINE (Equiv. Lane Dist: 38.07 ft)											
Noise Adjustments											
Vehicle Type	REML Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL	Centerline Distance to Noise Contour (in feet)	
Automobiles	69.34	-1.44	1.67	-1.20	68.37	66.00	64.71	58.65	67.09	67.72	70 dBA: 32
Medium Trucks	77.62	-16.31	1.67	-1.20	61.78	42.58	34.79	44.00	50.16	50.19	65 dBA: 69
Heavy Trucks	82.14	-14.09	1.67	-1.20	68.52	51.53	43.75	52.96	59.11	59.15	60 dBA: 149
Total:				71.90	66.17	64.75	59.81	67.80	68.35	55 dBA: 321	349

Road Name: Summer Avenue		Segment: South of Orange Street		Roadway Classification: Major							
Average Daily Traffic: 9350 Vehicles		Vehicle Speed: 45 MPH		Vehicle Mix: 2							
NOISE PARAMETERS AT 60 FEET FROM CENTERLINE (Equiv. Lane Dist: 54.99 ft)											
Noise Adjustments											
Vehicle Type	REML Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL	Centerline Distance to Noise Contour (in feet)	
Automobiles	69.34	-2.49	-0.72	-1.20	64.93	62.56	61.26	55.21	63.64	64.27	70 dBA: 25
Medium Trucks	77.62	-17.36	-0.72	-1.20	58.34	39.13	31.35	40.56	46.71	46.75	65 dBA: 54
Heavy Trucks	82.14	-15.14	-0.72	-1.20	65.08	48.09	40.31	49.52	55.67	55.70	60 dBA: 117
Total:				68.46	62.73	61.30	56.36	64.36	64.90	55 dBA: 252	274

FHWA-RD-77-108 HIGHWAY TRAFFIC NOISE PREDICTION MODEL

Scenario: FUTURE YEAR 2040 WITH PROJECT CONDITIONS

Project: Magnolia Ranch
Site Conditions: Soft

Road Name: Scholar Way		Segment: North of Schleisman Road		Roadway Classification: Secondary														
Average Daily Traffic: 8300 Vehicles		Vehicle Speed: 35 MPH		Vehicle Mix: 1														
NOISE PARAMETERS AT 70 FEET FROM CENTERLINE (Equiv. Lane Dist: 67.65 ft)																		
Noise Adjustments			Unmitigated Noise Levels															
Vehicle Type	REMEL Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL	Centerline Distance to Noise Contour (in feet)	Ldn	CNEL						
Automobiles	65.11	-1.67	-2.07	-1.20	60.17	58.05	56.73	50.72	59.14	59.77	70 dBA:	13	15					
Medium Trucks	74.83	-18.91	-2.07	-1.20	52.65	31.40	37.42	19.13	32.27	35.02	65 dBA:	29	32					
Heavy Trucks	80.05	-22.86	-2.07	-1.20	53.91	42.66	25.16	29.81	41.09	41.12	60 dBA:	62	68					
Total:											61.67	58.18	56.79	50.76	59.22	59.84	134	147

Road Name: Scholar Way		Segment: South of Schleisman Road		Roadway Classification: Secondary														
Average Daily Traffic: 7800 Vehicles		Vehicle Speed: 35 MPH		Vehicle Mix: 1														
NOISE PARAMETERS AT 60 FEET FROM CENTERLINE (Equiv. Lane Dist: 57.24 ft)																		
Noise Adjustments			Unmitigated Noise Levels															
Vehicle Type	REMEL Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL	Centerline Distance to Noise Contour (in feet)	Ldn	CNEL						
Automobiles	65.11	-1.94	-0.98	-1.20	60.99	58.86	57.55	51.54	59.96	60.59	70 dBA:	13	14					
Medium Trucks	74.83	-19.18	-0.98	-1.20	53.47	32.22	38.24	19.95	33.09	35.84	65 dBA:	28	31					
Heavy Trucks	80.05	-23.13	-0.98	-1.20	54.73	43.48	25.98	30.63	41.91	41.94	60 dBA:	60	66					
Total:											62.49	59.00	57.61	51.58	60.04	60.66	130	143

Road Name: Scholar Way		Segment: South of Orange Street		Roadway Classification: Secondary														
Average Daily Traffic: 8250 Vehicles		Vehicle Speed: 35 MPH		Vehicle Mix: 1														
NOISE PARAMETERS AT 60 FEET FROM CENTERLINE (Equiv. Lane Dist: 57.24 ft)																		
Noise Adjustments			Unmitigated Noise Levels															
Vehicle Type	REMEL Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL	Centerline Distance to Noise Contour (in feet)	Ldn	CNEL						
Automobiles	65.11	-1.70	-0.98	-1.20	61.23	59.11	57.80	51.78	60.20	60.83	70 dBA:	13	15					
Medium Trucks	74.83	-18.93	-0.98	-1.20	53.71	32.46	38.48	20.19	33.33	36.09	65 dBA:	29	32					
Heavy Trucks	80.05	-22.89	-0.98	-1.20	54.97	43.72	26.22	30.87	42.15	42.18	60 dBA:	63	69					
Total:											62.73	59.24	57.85	51.82	60.28	60.90	135	148

Road Name: Scholar Way		Segment: South of Baltimore Street		Roadway Classification: Secondary														
Average Daily Traffic: 8900 Vehicles		Vehicle Speed: 35 MPH		Vehicle Mix: 1														
NOISE PARAMETERS AT 75 FEET FROM CENTERLINE (Equiv. Lane Dist: 72.81 ft)																		
Noise Adjustments			Unmitigated Noise Levels															
Vehicle Type	REMEL Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL	Centerline Distance to Noise Contour (in feet)	Ldn	CNEL						
Automobiles	65.11	-1.37	-2.55	-1.20	59.99	57.87	56.56	50.54	58.96	59.59	70 dBA:	14	15					
Medium Trucks	74.83	-18.60	-2.55	-1.20	52.47	31.22	37.24	18.95	32.09	34.85	65 dBA:	30	33					
Heavy Trucks	80.05	-22.56	-2.55	-1.20	53.73	42.49	24.98	29.63	40.92	40.95	60 dBA:	65	71					
Total:											61.50	58.00	56.61	50.58	59.04	59.66	139	153

FHWA-RD-77-108 HIGHWAY TRAFFIC NOISE PREDICTION MODEL

Scenario: FUTURE YEAR 2040 WITH PROJECT CONDITIONS

Project: Magnolia Ranch
Site Conditions: Soft

Road Name:	Hamner Avenue	Segment:	North of Schleisman Road	Roadway Classification:	Urban Arterial													
Average Daily Traffic:	29850 Vehicles	Vehicle Speed:	45 MPH	Vehicle Mix:	2													
NOISE PARAMETERS AT 90 FEET FROM CENTERLINE (Equiv. Lane Dist: 81.11 ft)																		
Noise Adjustments																		
Vehicle Type	REME L Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL	Centerline Distance to Noise Contour (in feet)	Ldn	CNEL						
Automobiles	69.34	2.55	-3.26	-1.20	67.44	65.07	63.77	57.72	66.15	66.78	70 dBA:	61						
Medium Trucks	77.62	-12.32	-3.26	-1.20	60.85	41.64	33.86	43.07	49.22	49.26	65 dBA:	130						
Heavy Trucks	82.14	-10.10	-3.26	-1.20	67.59	50.60	42.82	52.03	58.18	58.21	60 dBA:	281						
Total:											70.97	65.24	63.81	58.87	66.87	67.41	55 dBA:	605

Road Name:	Hamner Avenue	Segment:	South of Schleisman Road	Roadway Classification:	Urban Arterial													
Average Daily Traffic:	29700 Vehicles	Vehicle Speed:	45 MPH	Vehicle Mix:	2													
NOISE PARAMETERS AT 100 FEET FROM CENTERLINE (Equiv. Lane Dist: 92.08 ft)																		
Noise Adjustments																		
Vehicle Type	REME L Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL	Centerline Distance to Noise Contour (in feet)	Ldn	CNEL						
Automobiles	69.34	2.53	-4.08	-1.20	66.59	64.22	62.93	56.87	65.30	65.93	70 dBA:	59						
Medium Trucks	77.62	-12.34	-4.08	-1.20	60.00	40.79	33.01	42.22	48.37	48.41	65 dBA:	127						
Heavy Trucks	82.14	-10.12	-4.08	-1.20	66.74	49.75	41.97	51.18	57.33	57.37	60 dBA:	274						
Total:											70.12	64.39	62.96	58.02	66.02	66.57	55 dBA:	590

Road Name:	Schleisman Road	Segment:	West of Sumner Avenue	Roadway Classification:	Major													
Average Daily Traffic:	31000 Vehicles	Vehicle Speed:	45 MPH	Vehicle Mix:	2													
NOISE PARAMETERS AT 70 FEET FROM CENTERLINE (Equiv. Lane Dist: 65.76 ft)																		
Noise Adjustments																		
Vehicle Type	REME L Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL	Centerline Distance to Noise Contour (in feet)	Ldn	CNEL						
Automobiles	69.34	2.71	-1.89	-1.20	68.97	66.60	65.31	59.25	67.68	68.31	70 dBA:	60						
Medium Trucks	77.62	-12.15	-1.89	-1.20	62.38	43.17	35.39	44.60	50.75	50.79	65 dBA:	128						
Heavy Trucks	82.14	-9.93	-1.89	-1.20	69.12	52.13	44.35	53.56	59.71	59.74	60 dBA:	276						
Total:											72.50	66.77	65.34	60.40	68.40	68.95	55 dBA:	595

Road Name:	Schleisman Road	Segment:	East of Sumner Avenue	Roadway Classification:	Urban Arterial													
Average Daily Traffic:	28300 Vehicles	Vehicle Speed:	45 MPH	Vehicle Mix:	2													
NOISE PARAMETERS AT 80 FEET FROM CENTERLINE (Equiv. Lane Dist: 69.85 ft)																		
Noise Adjustments																		
Vehicle Type	REME L Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL	Centerline Distance to Noise Contour (in feet)	Ldn	CNEL						
Automobiles	69.34	2.32	-2.28	-1.20	68.18	65.81	64.52	58.46	66.89	67.52	70 dBA:	60						
Medium Trucks	77.62	-12.55	-2.28	-1.20	61.59	42.38	34.60	43.81	49.97	50.00	65 dBA:	130						
Heavy Trucks	82.14	-10.33	-2.28	-1.20	68.33	51.34	43.56	52.77	58.92	58.96	60 dBA:	280						
Total:											71.71	65.98	64.56	59.61	67.61	68.16	55 dBA:	603

FHWA-RD-77-108 HIGHWAY TRAFFIC NOISE PREDICTION MODEL

Scenario: FUTURE YEAR 2040 WITH PROJECT CONDITIONS

Project: Magnolia Ranch
Site Conditions: Soft

Road Name: Schleisman Road **Segment: West of Scholar Way**
Average Daily Traffic: 33000 Vehicles Vehicle Speed: 45 MPH Vehicle Mix: 2 Roadway Classification: Urban Arterial

Vehicle Type	NOISE PARAMETERS AT 80 FEET FROM CENTERLINE (Equiv. Lane Dist: 69.85 ft)					Centerline Distance to Noise Contour (in feet)													
	REMEL Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL										
Automobiles	69.34	2.99	-2.28	-1.20	68.85	66.48	65.18	59.13	67.56	68.19	70 dBA:	61	67						
Medium Trucks	77.62	-11.88	-2.28	-1.20	62.26	43.05	35.27	44.48	50.63	50.67	65 dBA:	132	144						
Heavy Trucks	82.14	-9.66	-2.28	-1.20	69.00	52.01	44.23	53.43	59.59	59.62	60 dBA:	285	310						
Total:											72.38	66.65	65.22	60.28	68.28	68.82	55 dBA:	614	668

Road Name: Schleisman Road **Segment: East of Scholar Way**

Average Daily Traffic: 26400 Vehicles Vehicle Speed: 45 MPH Vehicle Mix: 2 Roadway Classification: Urban Arterial

Vehicle Type	NOISE PARAMETERS AT 80 FEET FROM CENTERLINE (Equiv. Lane Dist: 69.85 ft)					Centerline Distance to Noise Contour (in feet)													
	REMEL Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL										
Automobiles	69.34	2.02	-2.28	-1.20	67.88	65.51	64.21	58.16	66.59	67.22	70 dBA:	53	58						
Medium Trucks	77.62	-12.85	-2.28	-1.20	61.29	42.08	34.30	43.51	49.66	49.70	65 dBA:	114	124						
Heavy Trucks	82.14	-10.63	-2.28	-1.20	68.03	51.04	43.26	52.47	58.62	58.65	60 dBA:	246	267						
Total:											71.41	65.68	64.25	59.31	67.31	67.85	55 dBA:	529	576

Road Name: Orange Street

Segment: East of Summer Avenue

Average Daily Traffic: 1850 Vehicles Vehicle Speed: 30 MPH Vehicle Mix: 1 Roadway Classification: Collector

Vehicle Type	NOISE PARAMETERS AT 40 FEET FROM CENTERLINE (Equiv. Lane Dist: 38.97 ft)					Centerline Distance to Noise Contour (in feet)													
	REMEL Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL										
Automobiles	62.51	-7.52	1.52	-1.20	55.31	53.19	51.88	45.87	54.29	54.91	70 dBA:	4	4						
Medium Trucks	73.11	-24.76	1.52	-1.20	48.68	27.43	33.45	15.16	28.30	31.05	65 dBA:	8	9						
Heavy Trucks	80.26	-28.71	1.52	-1.20	51.87	40.62	23.12	27.77	39.05	39.08	60 dBA:	17	19						
Total:											57.54	53.44	51.95	45.94	54.42	55.04	55 dBA:	37	40

Road Name: Orange Street

Segment: West of Scholar Way

Average Daily Traffic: 3150 Vehicles Vehicle Speed: 30 MPH Vehicle Mix: 1 Roadway Classification: Collector

Vehicle Type	NOISE PARAMETERS AT 100 FEET FROM CENTERLINE (Equiv. Lane Dist: 99.59 ft)					Centerline Distance to Noise Contour (in feet)													
	REMEL Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL										
Automobiles	62.51	-5.21	-4.59	-1.20	51.51	49.39	48.08	42.07	50.48	51.11	70 dBA:	5	6						
Medium Trucks	73.11	-22.45	-4.59	-1.20	44.88	23.63	29.65	11.35	24.50	27.25	65 dBA:	11	12						
Heavy Trucks	80.26	-26.40	-4.59	-1.20	48.07	36.82	19.32	23.97	35.25	35.28	60 dBA:	24	26						
Total:											53.74	49.63	48.14	42.14	50.62	51.24	55 dBA:	51	56

APPENDIX E

FHWA Model Onsite Traffic Noise Calculation Printouts

FHWA-RD-77-108 HIGHWAY TRAFFIC NOISE PREDICTION MODEL

Road Name: Schleisman Road
 Building: Building 9

Project Name: Magnolia Ranch
 Job Number: 21003

NOISE MODEL INPUTS

Highway Data		Vehicle Mix				
Average Daily Traffic:	33,000 vehicles	Day	Evening	Night	Daily	
Peak Hour Volume:	3,300 vehicles	Autos:	69.5%	12.9%	9.6%	92.0%
Vehicle Speed:	45 mph	Medium Trucks:	1.4%	0.1%	1.5%	3.0%
Near/Far Lane Distance:	78 feet	Heavy Trucks:	2.4%	0.1%	2.5%	5.0%
Site Data		Elevations				
Barrier Height:	6.5 feet	Barrier Base Elevation:	615.4 feet			
Barrier Type(Wall/Berm):	Wall	Road Elevation:	611.5 feet			
Site Conditions(Hard/Soft):	Soft	Noise Source Elevation above Road				
Centerline (C.L.) Dist. to Barrier:	76 feet	Autos:	0 feet			
C.L. Dist. To Observer (Backyard):	86 feet	Med Trucks:	2.3 feet			
Barrier Dist. To Observer (Backyard):	10 feet	Hvy Trucks:	8 feet			
C.L. Dist. To Observer (Structure):	97 feet	Pad Elevation:	615.4 feet			
Barrier Dist. To Observer (Structure):	21 feet	Observer Heights Above Pad Elevation				
Road Grade:	0.00 %	Exterior:	5 feet			
Left View:	-90 degrees	First Floor:	5.5 feet			
Right View:	90 degrees	Second Floor:	14 feet			

FHWA NOISE MODEL CALCULATIONS

	REMEL	Traffic Flow	Distance	Finite Road	Grade	Barrier Attenuation		
						Exterior	1st Flr	2nd Flr
Autos:	69.34	2.99	-2.93	-1.20	0.00	-9.3	-8.7	-0.3
Med Trucks:	77.62	-11.88	-2.93	-1.20	0.00	-9.38	-8.4	-0.156
Hvy Trucks:	82.14	-9.66	-2.93	-1.20	0.00	-7.8	-6.16	0

UNMITIGATED NOISE LEVELS (No sound walls)

	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.1	65.7	64.4	58.3	66.8	67.4
Med Trucks:	61.6	42.4	34.6	43.8	50.0	50.0
Hvy Trucks:	68.3	51.4	43.6	52.8	58.9	59.0
Traffic Noise:	71.7	65.9	64.4	59.5	67.5	68.1

MITIGATED NOISE LEVELS (Backyard)

	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	58.9	56.5	55.2	49.2	57.6	58.2
Med Trucks:	52.2	33.0	25.2	34.4	40.6	40.6
Hvy Trucks:	60.5	43.6	35.8	45.0	51.1	51.2
Traffic Noise:	63.2	56.8	55.3	50.7	58.6	59.1

MITIGATED NOISE LEVELS (First Floor)

	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	58.5	56.2	54.9	48.8	57.3	57.9
Med Trucks:	52.3	33.1	25.3	34.5	40.6	40.7
Hvy Trucks:	61.2	44.2	36.5	45.7	51.8	51.9
Traffic Noise:	63.5	56.5	54.9	50.6	58.4	58.9

MITIGATED NOISE LEVELS (Second Floor)

	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	66.8	64.5	63.2	57.1	65.6	66.2
Med Trucks:	60.4	41.2	33.4	42.6	48.8	48.8
Hvy Trucks:	67.3	50.3	42.5	51.7	57.9	57.9
Traffic Noise:	70.5	64.7	63.2	58.3	66.3	66.9

FHWA-RD-77-108 HIGHWAY TRAFFIC NOISE PREDICTION MODEL

Road Name: Schleisman Road
 Building: Building 11

Project Name: Magnolia Ranch
 Job Number: 21003

NOISE MODEL INPUTS

Highway Data		Vehicle Mix				
Average Daily Traffic:	33,000 vehicles	Day	Evening	Night	Daily	
Peak Hour Volume:	3,300 vehicles	Autos:	69.5%	12.9%	9.6%	92.0%
Vehicle Speed:	45 mph	Medium Trucks:	1.4%	0.1%	1.5%	3.0%
Near/Far Lane Distance:	78 feet	Heavy Trucks:	2.4%	0.1%	2.5%	5.0%
Site Data		Elevations				
Barrier Height:	6.5 feet	Barrier Base Elevation:	616.0 feet			
Barrier Type(Wall/Berm):	Wall	Road Elevation:	613.0 feet			
Site Conditions(Hard/Soft):	Soft	Noise Source Elevation above Road				
Centerline (C.L.) Dist. to Barrier:	76 feet	Autos:	0 feet			
C.L. Dist. To Observer (Backyard):	86 feet	Med Trucks:	2.3 feet			
Barrier Dist. To Observer (Backyard):	10 feet	Hvy Trucks:	8 feet			
C.L. Dist. To Observer (Structure):	109 feet	Pad Elevation:	616.0 feet			
Barrier Dist. To Observer (Structure):	33 feet	Observer Heights Above Pad Elevation				
Road Grade:	0.00 %	Exterior:	5 feet			
Left View:	-90 degrees	First Floor:	5.5 feet			
Right View:	90 degrees	Second Floor:	14 feet			

FHWA NOISE MODEL CALCULATIONS

	REMEL	Traffic Flow	Distance	Finite Road	Grade	Barrier Attenuation		
						Exterior	1st Flr	2nd Flr
Autos:	69.34	2.99	-2.92	-1.20	0.00	-9.12	-8.65	-0.95
Med Trucks:	77.62	-11.88	-2.92	-1.20	0.00	-9.15	-8.2	-0.4
Hvy Trucks:	82.14	-9.66	-2.92	-1.20	0.00	-7.55	-5.7	-0.161

UNMITIGATED NOISE LEVELS (No sound walls)

	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.1	65.7	64.4	58.4	66.8	67.4
Med Trucks:	61.6	42.4	34.6	43.8	50.0	50.0
Hvy Trucks:	68.4	51.4	43.6	52.8	58.9	59.0
Traffic Noise:	71.7	65.9	64.5	59.5	67.5	68.1

MITIGATED NOISE LEVELS (Backyard)

	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	59.1	56.7	55.4	49.4	57.8	58.4
Med Trucks:	52.5	33.3	25.5	34.7	40.8	40.9
Hvy Trucks:	60.8	43.8	36.0	45.2	51.4	51.4
Traffic Noise:	63.4	57.0	55.5	50.9	58.8	59.3

MITIGATED NOISE LEVELS (First Floor)

	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	57.7	55.4	54.1	48.0	56.4	57.1
Med Trucks:	51.6	32.4	24.6	33.8	40.0	40.0
Hvy Trucks:	60.8	43.8	36.1	45.3	51.4	51.4
Traffic Noise:	62.9	55.7	54.1	50.0	57.7	58.2

MITIGATED NOISE LEVELS (Second Floor)

	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.4	63.0	61.7	55.6	64.1	64.7
Med Trucks:	59.3	40.1	32.3	41.5	47.7	47.7
Hvy Trucks:	66.3	49.3	41.5	50.7	56.9	56.9
Traffic Noise:	69.3	63.2	61.7	57.0	64.9	65.4

FHWA-RD-77-108 HIGHWAY TRAFFIC NOISE PREDICTION MODEL

Road Name: Schleisman Road
 Building: Building 13

Project Name: Magnolia Ranch
 Job Number: 21003

NOISE MODEL INPUTS

Highway Data		Vehicle Mix				
Average Daily Traffic:	33,000 vehicles	Day	Evening	Night	Daily	
Peak Hour Volume:	3,300 vehicles	Autos:	69.5%	12.9%	9.6%	92.0%
Vehicle Speed:	45 mph	Medium Trucks:	1.4%	0.1%	1.5%	3.0%
Near/Far Lane Distance:	78 feet	Heavy Trucks:	2.4%	0.1%	2.5%	5.0%
Site Data		Elevations				
Barrier Height:	6.5 feet	Barrier Base Elevation:	615.6 feet			
Barrier Type(Wall/Berm):	Wall	Road Elevation:	614.0 feet			
Site Conditions(Hard/Soft):	Soft	Noise Source Elevation above Road				
Centerline (C.L.) Dist. to Barrier:	76 feet	Autos:	0 feet			
C.L. Dist. To Observer (Backyard):	86 feet	Med Trucks:	2.3 feet			
Barrier Dist. To Observer (Backyard):	10 feet	Hvy Trucks:	8 feet			
C.L. Dist. To Observer (Structure):	109 feet	Pad Elevation:	615.6 feet			
Barrier Dist. To Observer (Structure):	33 feet	Observer Heights Above Pad Elevation				
Road Grade:	0.00 %	Exterior:	5 feet			
Left View:	-90 degrees	First Floor:	5.5 feet			
Right View:	90 degrees	Second Floor:	14 feet			

FHWA NOISE MODEL CALCULATIONS

	REMEL	Traffic Flow	Distance	Finite Road	Grade	Barrier Attenuation		
						Exterior	1st Flr	2nd Flr
Autos:	69.34	2.99	-2.91	-1.20	0.00	-8.8	-8.05	-0.7
Med Trucks:	77.62	-11.88	-2.91	-1.20	0.00	-8.8	-7.6	-0.33
Hvy Trucks:	82.14	-9.66	-2.91	-1.20	0.00	-7.15	-5.2	-0.136

UNMITIGATED NOISE LEVELS (No sound walls)

	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.1	65.7	64.4	58.4	66.8	67.4
Med Trucks:	61.6	42.4	34.6	43.8	50.0	50.0
Hvy Trucks:	68.4	51.4	43.6	52.8	59.0	59.0
Traffic Noise:	71.7	65.9	64.5	59.6	67.6	68.1

MITIGATED NOISE LEVELS (Backyard)

	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	59.4	57.0	55.8	49.7	58.1	58.8
Med Trucks:	52.8	33.6	25.8	35.0	41.2	41.2
Hvy Trucks:	61.2	44.2	36.4	45.7	51.8	51.8
Traffic Noise:	63.8	57.3	55.8	51.2	59.1	59.6

MITIGATED NOISE LEVELS (First Floor)

	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	58.3	56.0	54.7	48.6	57.0	57.7
Med Trucks:	52.2	33.0	25.2	34.4	40.6	40.6
Hvy Trucks:	61.3	44.3	36.6	45.8	51.9	52.0
Traffic Noise:	63.4	56.3	54.7	50.5	58.3	58.8

MITIGATED NOISE LEVELS (Second Floor)

	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.6	63.2	62.0	55.9	64.3	65.0
Med Trucks:	59.4	40.2	32.4	41.6	47.8	47.8
Hvy Trucks:	66.3	49.3	41.6	50.8	56.9	57.0
Traffic Noise:	69.4	63.4	62.0	57.2	65.1	65.7

FHWA-RD-77-108 HIGHWAY TRAFFIC NOISE PREDICTION MODEL

Road Name: Schleisman Road
 Lot Number: Building 15

Project Name: Magnolia Ranch
 Job Number: 21003

NOISE MODEL INPUTS

Highway Data		Vehicle Mix				
Average Daily Traffic:	33,000 vehicles	Day	Evening	Night	Daily	
Peak Hour Volume:	3,300 vehicles	Autos:	69.5%	12.9%	9.6%	92.0%
Vehicle Speed:	45 mph	Medium Trucks:	1.4%	0.1%	1.5%	3.0%
Near/Far Lane Distance:	78 feet	Heavy Trucks:	2.4%	0.1%	2.5%	5.0%
Site Data		Elevations				
Barrier Height:	6.5 feet	Barrier Base Elevation:	615.2 feet			
Barrier Type(Wall/Berm):	Wall	Road Elevation:	615.0 feet			
Site Conditions(Hard/Soft):	Soft	Noise Source Elevation above Road				
Centerline (C.L.) Dist. to Barrier:	76 feet	Autos:	0 feet			
C.L. Dist. To Observer (Backyard):	86 feet	Med Trucks:	2.3 feet			
Barrier Dist. To Observer (Backyard):	10 feet	Hvy Trucks:	8 feet			
C.L. Dist. To Observer (Structure):	99 feet	Pad Elevation:	615.2 feet			
Barrier Dist. To Observer (Structure):	23 feet	Observer Heights Above Pad Elevation				
Road Grade:	0.00 %	Exterior:	5 feet			
Left View:	-90 degrees	First Floor:	5.5 feet			
Right View:	90 degrees	Second Floor:	14 feet			

FHWA NOISE MODEL CALCULATIONS

	REMEL	Traffic Flow	Distance	Finite Road	Grade	Barrier Attenuation		
						Exterior	1st Flr	2nd Flr
Autos:	69.34	2.99	-2.90	-1.20	0.00	-8.4	-7.43	-0.19
Med Trucks:	77.62	-11.88	-2.90	-1.20	0.00	-8.35	-6.94	-0.124
Hvy Trucks:	82.14	-9.66	-2.90	-1.20	0.00	-6.72	-5.1	0

UNMITIGATED NOISE LEVELS (No sound walls)

	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.2	65.9	64.6	58.5	66.9	67.6
Med Trucks:	61.6	42.4	34.7	43.9	50.0	50.0
Hvy Trucks:	68.4	51.4	43.6	52.8	59.0	59.0
Traffic Noise:	71.8	66.0	64.6	59.7	67.7	68.2

MITIGATED NOISE LEVELS (Backyard)

	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	59.8	57.5	56.2	50.1	58.5	59.2
Med Trucks:	53.3	34.1	26.3	35.5	41.7	41.7
Hvy Trucks:	61.7	44.7	36.9	46.1	52.2	52.3
Traffic Noise:	64.2	57.7	56.2	51.7	59.5	60.0

MITIGATED NOISE LEVELS (First Floor)

	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	59.7	57.3	56.0	50.0	58.4	59.0
Med Trucks:	53.6	34.4	26.6	35.8	42.0	42.0
Hvy Trucks:	62.2	45.2	37.4	46.6	52.8	52.8
Traffic Noise:	64.5	57.6	56.1	51.7	59.5	60.0

MITIGATED NOISE LEVELS (Second Floor)

	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	66.9	64.5	63.2	57.1	65.6	66.2
Med Trucks:	60.3	41.1	33.3	42.5	48.7	48.7
Hvy Trucks:	67.2	50.2	42.4	51.6	57.8	57.8
Traffic Noise:	70.5	64.7	63.2	58.3	66.3	66.9

FHWA-RD-77-108 HIGHWAY TRAFFIC NOISE PREDICTION MODEL

Road Name: Schleisman Road
 Lot Number: Building 17

Project Name: Magnolia Ranch
 Job Number: 21003

NOISE MODEL INPUTS

Highway Data		Vehicle Mix				
Average Daily Traffic:	33,000 vehicles	Day	Evening	Night	Daily	
Peak Hour Volume:	3,300 vehicles	Autos:	69.5%	12.9%	9.6%	92.0%
Vehicle Speed:	45 mph	Medium Trucks:	1.4%	0.1%	1.5%	3.0%
Near/Far Lane Distance:	78 feet	Heavy Trucks:	2.4%	0.1%	2.5%	5.0%
Site Data		Elevations				
Barrier Height:	6.5 feet	Barrier Base Elevation: 617.5 feet				
Barrier Type(Wall/Berm):	Wall	Road Elevation: 617.0 feet				
Site Conditions(Hard/Soft):	Soft	Noise Source Elevation above Road				
Centerline (C.L.) Dist. to Barrier:	76 feet	Autos: 0 feet				
C.L. Dist. To Observer (Backyard):	86 feet	Med Trucks: 2.3 feet				
Barrier Dist. To Observer (Backyard):	10 feet	Hvy Trucks: 8 feet				
C.L. Dist. To Observer (Structure):	121 feet	Pad Elevation: 617.5 feet				
Barrier Dist. To Observer (Structure):	45 feet	Observer Heights Above Pad Elevation				
Road Grade:	0.00 %	Exterior: 5 feet				
Left View:	-90 degrees	First Floor: 5.5 feet				
Right View:	90 degrees	Second Floor: 14 feet				

FHWA NOISE MODEL CALCULATIONS

	REMEL	Traffic Flow	Distance	Finite Road	Grade	Barrier Attenuation		
						Exterior	1st Flr	2nd Flr
Autos:	69.34	2.99	-2.90	-1.20	0.00	-8.5	-7.8	-1.4
Med Trucks:	77.62	-11.88	-2.90	-1.20	0.00	-8.45	-7.08	-0.56
Hvy Trucks:	82.14	-9.66	-2.90	-1.20	0.00	-6.8	-4.9	-0.173

UNMITIGATED NOISE LEVELS (No sound walls)

	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.1	65.8	64.5	58.4	66.8	67.5
Med Trucks:	61.6	42.4	34.6	43.9	50.0	50.0
Hvy Trucks:	68.4	51.4	43.6	52.8	59.0	59.0
Traffic Noise:	71.7	65.9	64.5	59.6	67.6	68.1

MITIGATED NOISE LEVELS (Backyard)

	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	59.7	57.4	56.1	50.0	58.4	59.1
Med Trucks:	53.2	34.0	26.2	35.4	41.6	41.6
Hvy Trucks:	61.6	44.6	36.8	46.0	52.2	52.2
Traffic Noise:	64.1	57.6	56.1	51.6	59.4	59.9

MITIGATED NOISE LEVELS (First Floor)

	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	57.8	55.4	54.2	48.1	56.5	57.2
Med Trucks:	51.9	32.7	25.0	34.2	40.3	40.4
Hvy Trucks:	60.9	43.9	36.1	45.3	51.5	51.5
Traffic Noise:	63.0	55.8	54.2	50.0	57.8	58.3

MITIGATED NOISE LEVELS (Second Floor)

	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	64.2	61.8	60.5	54.5	62.9	63.5
Med Trucks:	58.4	39.2	31.4	40.6	46.8	46.8
Hvy Trucks:	65.5	48.6	40.8	50.0	56.1	56.2
Traffic Noise:	68.4	62.0	60.6	55.9	63.8	64.3